THE ARCHITECT & BUILDING NEWS

In this issue

TWO NEW TECHNICAL COLLEGES

NEW CANTEEN, DUXFORD, CAMBRIDGE

NEWS OF THE BUILDING INDUSTRY

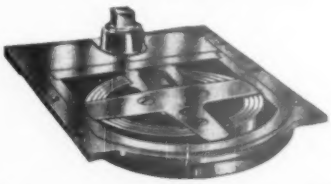
NOVEMBER 17, 1950 · VOL 198 · NO 4274 · ONE SHILLING WEEKLY

A fine Renaissance door in Broughton Castle

THE *Britannic*

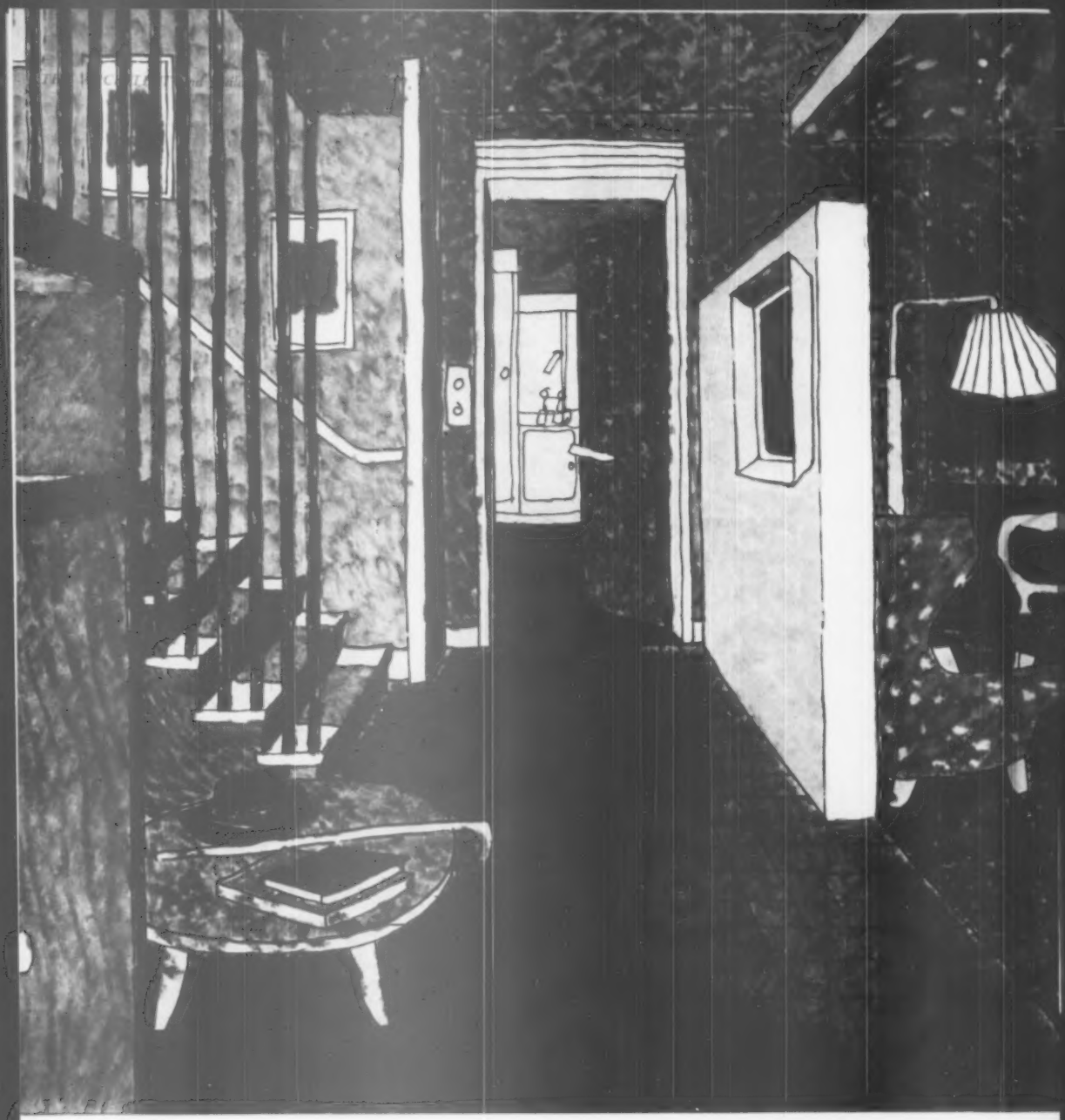
PATENT FLOOR SPRING WITH HYDRAULIC CHECK ACTION

Architects are invited to inspect our display of Door Springs, Floor Springs, etc., recently placed on view in the Building Centre, 9 Conduit Street, London, W.1



WILLIAM NEWMAN & SONS LTD., HOSPITAL STREET, BIRMINGHAM 19

ESTABLISHED 200 YEARS



From an original drawing by GORDON CULLEN. *Houses at Caterham.*

Floor Tiles for low cost housing

FOR HOUSES, bright and cheerful, permanently coloured tiles are needed that do not show footmarks and are no trouble to clean. Marley Floor Tiles are colourful, silent, resilient, durable, hygienic and waterproof. They provide also an inexpensive solution of the flooring problem for schools, hotels, restaurants, hospitals, canteens and offices. Marley Floor Tiles can be supplied immediately in any quantity and in a wide range of colours.

The Marley Tile Co. Ltd., London Rd., Riverhead, Sevenoaks, Kent. Sevenoaks 2251-6 **MARLEY**

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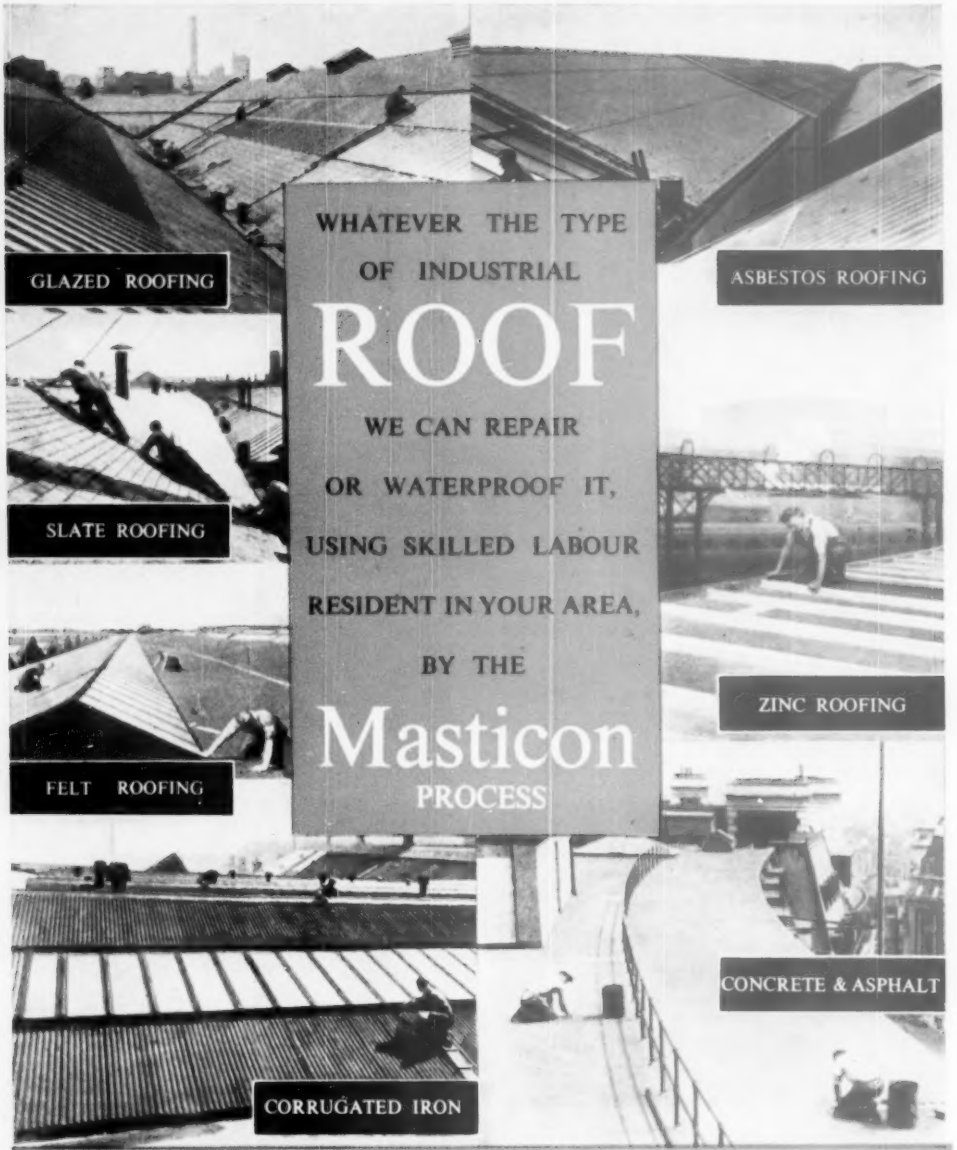

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ROOF

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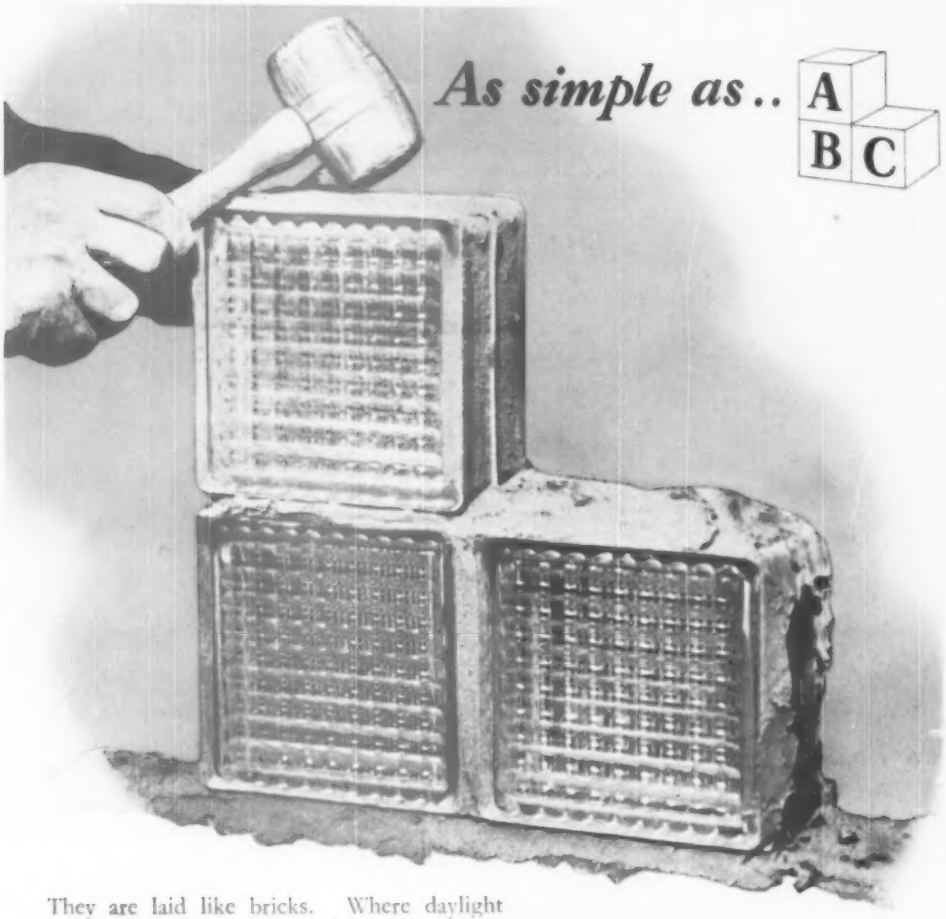

They are laid like bricks. Where daylight with privacy is wanted and thermal insulation is desirable, specify

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Send for the free booklet giving fixing details for "INSULIGHT" Hollow Glass Blocks

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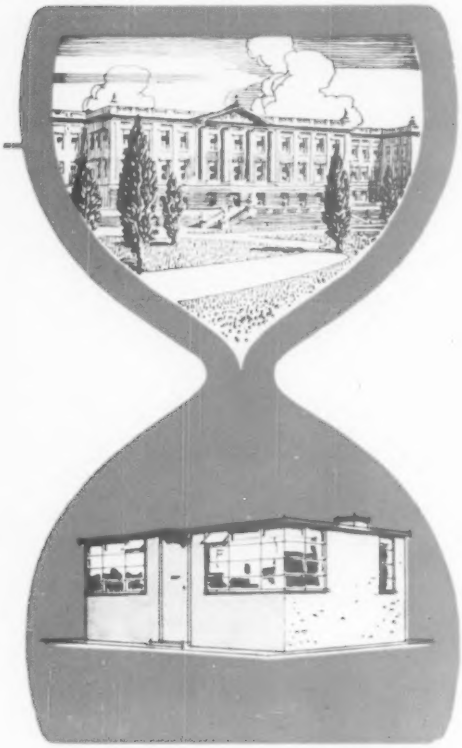

Mansion

or

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With Dockers Paints, Lacquers and Varnishes, there is a product for every purpose.

Whatever the need, there is always a Docker Finish that has been "made for the job."

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Super Gloss Paint decorates, protects and preserves under the most arduous conditions. For interior decoration of the highest quality, specify MUROLEUM Flat Oil Paint.

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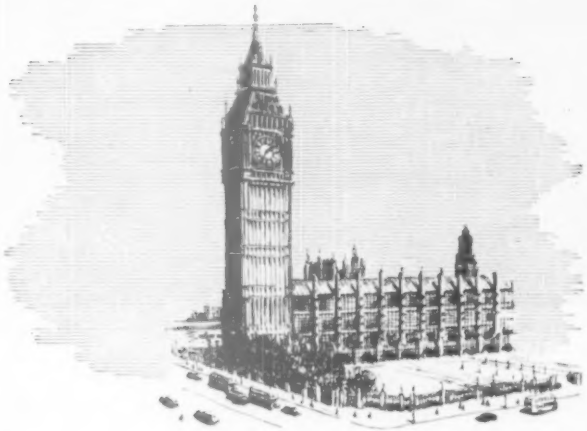
LADYWOOD · BIRMINGHAM · 16



LIFTS, ESCALATORS, REFRIGERATION IN THE NEW HOUSE OF COMMONS

Nine passenger lifts, three handpower hoists, two large refrigerating compressors for the air conditioning plant installed in the new House of Commons; nearby, on the South Bank Site of the Festival of Britain, an escalator, holding a record for bridging the longest span without intermediate support, to be working next year in the Dome of Discovery; four other escalators at the new Ocean Terminal, Southampton Docks, the first ever applied to the purpose of embarking and disembarking passengers by ocean liners; the liners, practically without exception, equipped with refrigerating plant; sixty-three per cent of the whole world's refrigerated shipping tonnage cooled by refrigerating machinery designed, built and installed by the same famous firm.

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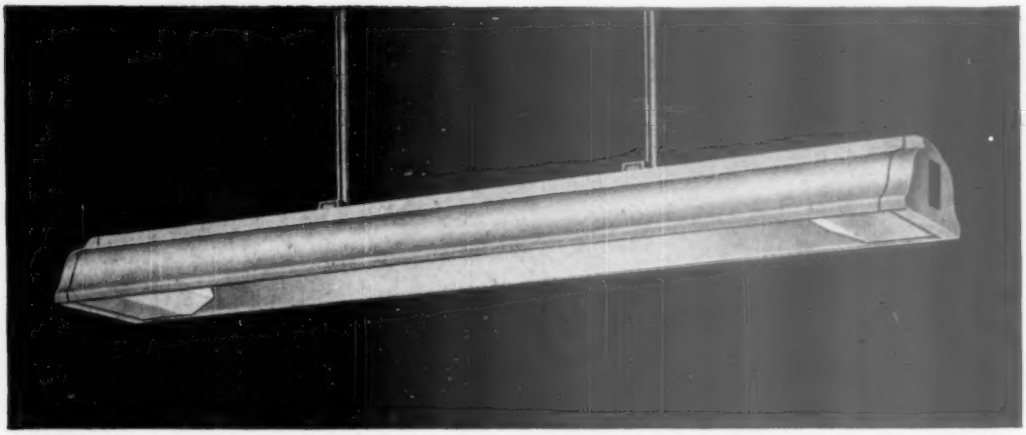

F 62004 *(One 5 ft. 80w) Trough reflector with upward illumination. Single or continuous fixing.* **Price £5.0.0** *(without gear)*

There are over 100 distinctive units
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Fluorescent Fittings
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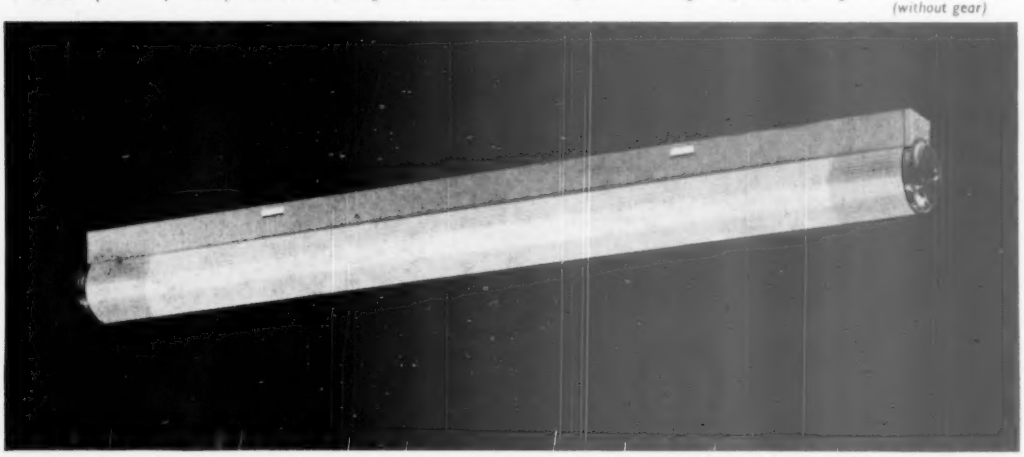

THE GENERAL ELECTRIC CO. LTD., MAGNET HOUSE, KINGSWAY, LONDON, W.C.2

KINNEAR PATENT STEEL ROLLING SHUTTERS

Registered KINNEAR Trade Mark

The following comment on Kinnear Shutters reached us a few days ago:

"It is quite obvious that Kinnear Shutters do stand out a mile for quality and working."

We can furnish information as to the source of the above remark on receipt of bona fide enquiries.

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Send for this new EDA publication

THIS NEW EDA PUBLICATION is devoted to the special problems that arise in the conversion of old houses into new flats, and the advantages that electricity has to offer in this work. Costs must be kept within strictly defined limits, yet the flats must be labour-saving to meet the needs of future tenants, and so electricity is the best method of providing *all* the services required.

With electricity, *one* installation will provide all the services for a modern home — lighting, heating, cooking, refrigeration, hot water, cleaning, clothes washing, drying and ironing, and radio and television.

"ELECTRICITY TURNS OLD HOUSES INTO NEW FLATS" is divided into eight sections, which deal with water heating, kitchen planning, cooking, refrigeration, heating, laundry, wiring, and lighting ; it is illustrated by photographs and diagrams which show how installations can be made with the greatest economy in cost and efficiency in performance.

Architects and builders are invited to write for copies

THE BRITISH ELECTRICAL DEVELOPMENT ASSOCIATION, 2 SAVOY HILL, LONDON, W.C.2

BEACON

ZINC SPRAYED PURPOSE-MADE WINDOWS

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The Ruberoid system of roofing affords suitable specifications to meet the requirements of every size and type of roof and has been recognised all over the world for over 50 years as providing protection at a lower cost per year of service than any other form of roofing.

RUBEROID ROOFING

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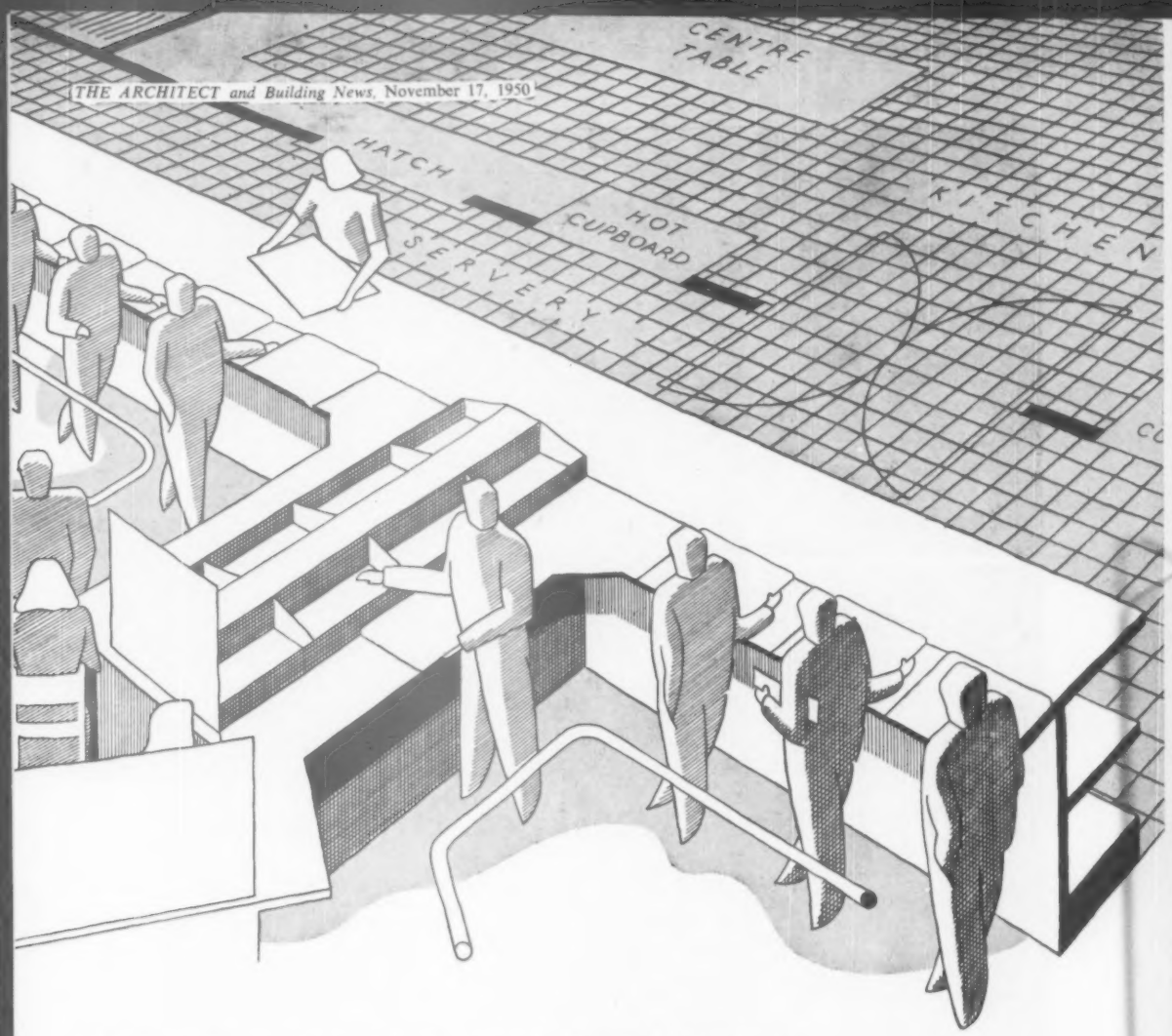
Details of the contract carried out at the Indian Museum, Calcutta, are contained in a special folder (No. 788) available on request. Architects and Engineers are also invited to write for Catalogue No. 326, "Standard Specifications for Ruberoid Roofs."

THE RUBEROID COMPANY LIMITED, 93, COMMONWEALTH HOUSE, 1-19 NEW OXFORD STREET, LONDON, W.C.1
Branches: Manchester, Newcastle-on-Tyne, Birmingham, Edinburgh, Glasgow, Belfast.



Planning for Industrial Catering

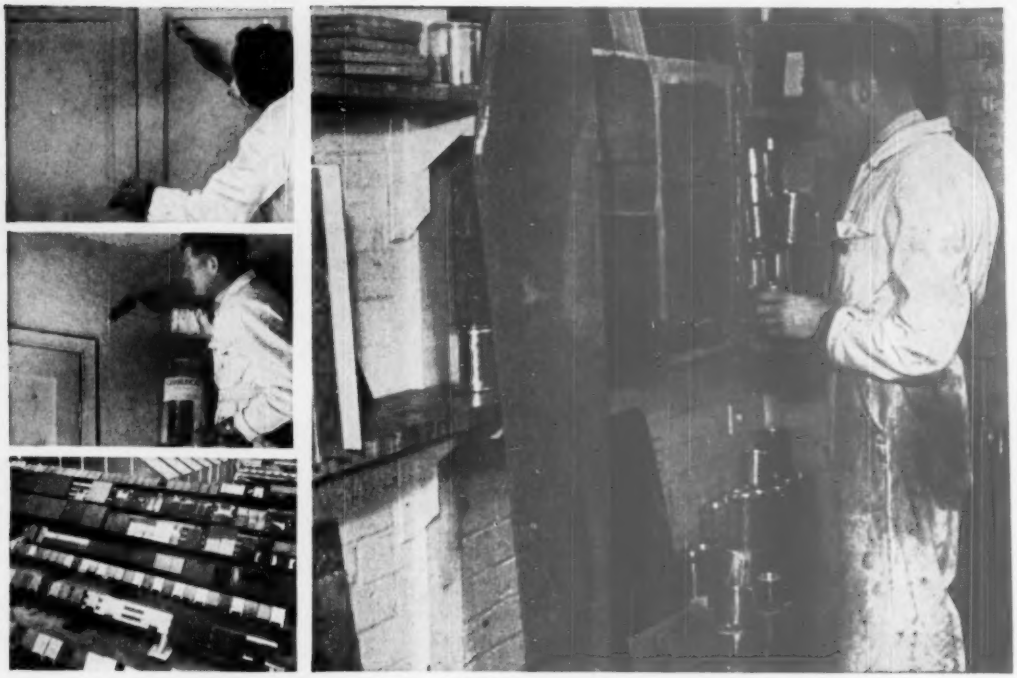
WHILST THE PLANNING of every kitchen or canteen will vary according to individual circumstances, there are many essential data, including dimensions, which are common to any such scheme. It is of great value, too, if the planner can have access to the knowledge which has been accumulated from past experience of similar problems.

The Gas Industry has collated a great deal of information on the subject of industrial catering. For instance, planning requirements to which consideration must be given ; schedules of equipment required to produce a given number of meals in a given time ; typical plans illustrating the possibilities of combining various types of equipment ; and examples of kitchens which have been designed and installed to suit individual sites and conditions. This information is freely available to architects, and others in responsible positions, who are concerned with the planning and equipment of industrial kitchens and canteens.

The collation of this kind of information is one of many activities by which The Gas Council seeks to promote the development of gas services for cooking, hot water, space heating and refrigeration. In all cases where the use of gas is envisaged, early consultation with the Gas Undertaking is advisable.

GAS

ISSUED BY THE GAS COUNCIL · 1 GROSVENOR PLACE · SW1 · TELEPHONE: SLOANE 4554



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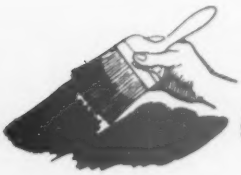
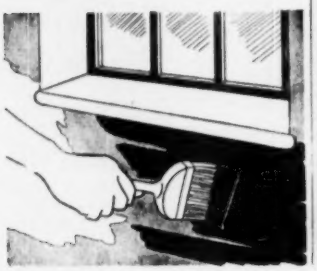
JW

The waterproof skin  you brush on

to prevent or cure damp walls . . .

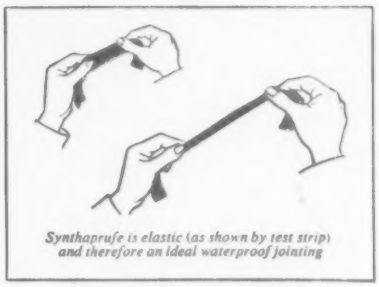


to seal concrete roofs . . .

to waterproof concrete sub-floors

SYNTHAPRUFE

forms an elastic, adhesive, waterproof coat containing rubber



Synthaprufe is elastic (as shown by test strip) and therefore an ideal waterproof jointing

SYNTHAPRUFE is a ready-to-use waterproofing compound which is applied *cold* by brush. Containing rubber, it is strongly adhesive, and sets rapidly to form a flexible, elastic film which is impervious to moisture.

It can be applied over concrete, plaster, brick, metal, or timber surfaces, and is satisfactorily used both in new construction and on existing buildings.

It makes an ideal waterproof "sandwich" layer in concrete sub-floors or roofs; and when used under granolithic or Terrazzo surfaces, it reduces the risk of cracking because its elasticity enables it to absorb slight movements in the base.

Synthaprufe is highly effective as a vertical damp-course on either external or internal surfaces, and is most valuable for treating damp in existing walls. Applied to outer surfaces, it can be rendered with cement mortar; applied to inside walls, it may be plastered if desired, or finished in distemper or wallpaper. Being strongly adhesive, Synthaprufe is also a perfect waterproof fixative for linoleum, wood blocks, and other floor or wall coverings.

In short, Synthaprufe offers the architect, builder, and engineer a waterproofing and jointing material of unusual efficiency and versatility, ready to use and easily applied.

SOME SPECIAL USES

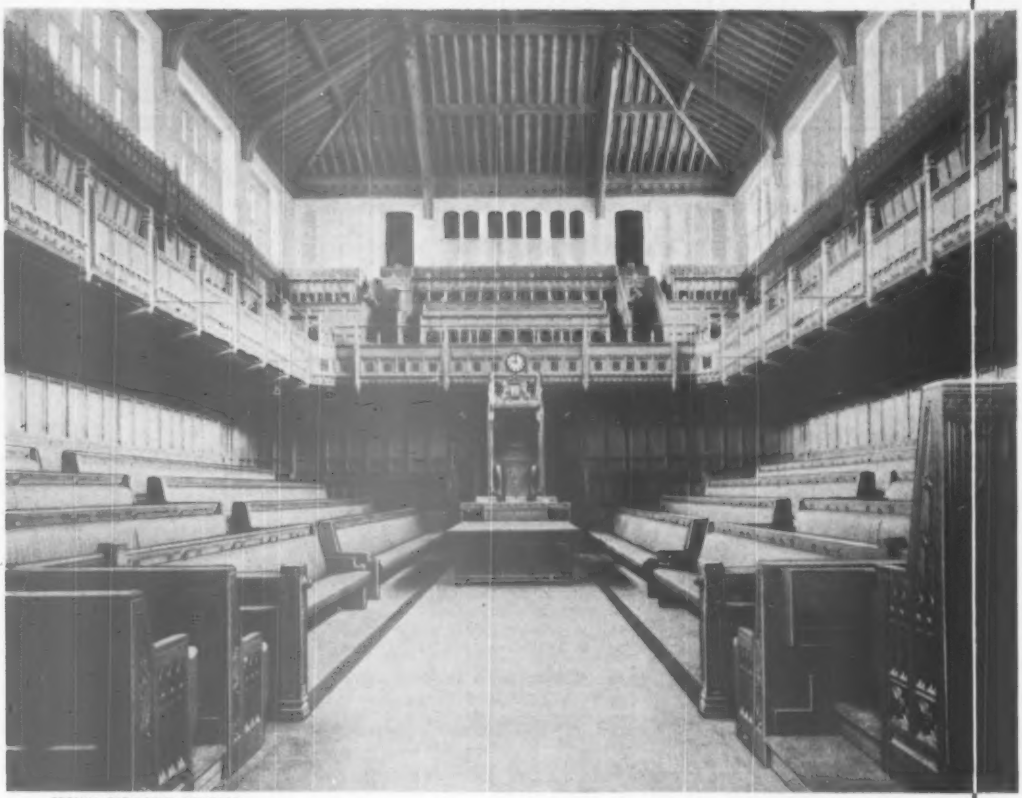
- **Sealing concrete structures above and below ground level — swimming-baths, reservoirs, cooling-towers, etc.**
- **Protecting concrete piles, steelwork, sewer-pipes and joints, etc.**
- **Waterproofing asphalt, lead, zinc, corrugated iron, or felted roofs.**

SYNTHAPRUFE CONTAINING RUBBER

Manufactured by the NCB *National Coal Board*

Synthaprufe is a product of British Coal. Further details, and advice on any technical problem, will gladly be given on application to the National Coal Board, By-Products, N.P. Bank Buildings, Docks, Cardiff

THE NEW HOUSE OF COMMONS



CROWN COPYRIGHT RESERVED

Among the Timbers we were privileged to supply for the new House of Commons was the Australian Walnut for the flooring

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Notes on
REINFORCED CONCRETE GROUND FLOORS

1 A reinforced concrete ground floor will carry all normal factory loads on any ground, including made up sites.

2 A floor reinforced with welded fabric will save half the concrete required in a floor laid without reinforcement.

3 Reinforcement enables the slab to spread concentrated loads over a large area of ground.

4 Large cracks due to contraction of the concrete during setting and thermal expansion and contraction are prevented by the reinforcement.

5 Partitions may be built on the floor without separate foundations.

6 Light machinery may be placed in any position.

7 A suitable wearing surface is provided by ½" of grano, laid at the same time, or not less than 1½" laid in panels subsequently.

8 For many purposes a satisfactory dustless wearing surface is given by the application of a surface hardener.

9 Reinforced concrete ground floors 3" thick replace sleeper walls and floor joists in houses.

10 Each floor is designed with due regard to its use, the loads to be carried, and the nature of the soil upon which it is placed.

BRC

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B-W.501

Every type of window & door–**metal or wood**–can be made permanently draught-proof by specifying **HERMESEAL**

BRITISH HERMESEAL LIMITED have pioneered draught-proofing throughout Great Britain, and remarkable results in heat conservation and fuel saving have been achieved by the prevention of cold air infiltration through windows and doors, hitherto the most prolific yet neglected source of heat loss in the average house. In Europe, their associated companies have fitted over 1,000,000 doors and windows. The company therefore has the benefit of long experience.

Here are some important facts on draught exclusion

- **THE AVERAGE GAP** around wooden windows and doors through which infiltration takes place, i.e., the gap between frame and sash, or frame and door, has been shown as a result of many thousands of tests, to be about $\frac{1}{8}$ of an inch.
- **BEFORE DRAUGHT-PROOFING.** Experiments on double-hung sash windows with such an average gap, and under a pressure produced by a typical wind speed of 10 m.p.h. revealed an infiltration rate of **106.0 cu. ft. per hour per foot of gap.** Such windows, 5' 0" high and 2' 9" wide, and having therefore a gap LENGTH of about 18' 0" showed a total infiltration rate per window of **1908.0 cu. ft. per hour.**
- **AFTER DRAUGHT-PROOFING.** The infiltration rate per foot of gap was **reduced to 14.7** (as against 106.0 cu. ft. per hour, and for the whole window was **reduced to 264.6** (as against 1908.0) **cu. ft. per hour.**
- **PREVENTION OF INFILTRATION** was therefore **1643.4 cu. ft. per hour** per window, or **86.1%**. Tests on casement windows have shown results **up to 95%**.

If the magnitude of the cold air infiltration rate is startling, the percentage of the reductions achieved by draught-proofing is equally so. What are the overall results?

★ ***About 50% of all the heat lost through the average window can be saved.***

★ ***About 20% of all the heat lost in the average house can be saved, assuming a comprehensive installation.***

IN ADDITION . . .

★ ***Draughts are banished.***

★ ***Fuel is saved,* and normal warmth and comfort can be enjoyed in cold weather when heat output would otherwise be inadequate.**

★ ***Heat is conserved and internal temperatures raised in* proportion to the heat loss prevented.**

★ ***Entry of airborne soot and dust* is reduced, with consequent saving in domestic work, particularly in cities and industrial areas.**

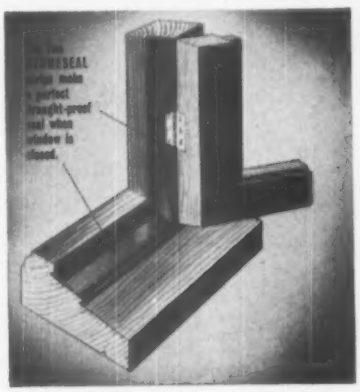
★ ***Noise is minimised* from external sources, and rattling windows and doors prevented.**

★ ***Capital cost of a permanent installation* is returned within a few heating seasons.**

THE PRODUCT, which is of high quality, consists of a specially designed strip of phosphor bronze alloy in varying widths, which is both flexible and strongly resistant to fatigue. It can be fitted to any type of window or door, metal or wood, and, by being given the mounting angle required, effectively seals the gaps between frame and sash, or frame and door, which are responsible for so much infiltration of outside air. It is unobtrusive in appearance, and does not interfere in any way with free opening and closing. Special types of drop-seals and thresholds, as well as sealing compounds for cracks around skirting boards and other openings, are other of the Company's products employed for the final completion of installations.

THE INSTALLATION is carried out by the Company's own fully trained staff, and the workmanship is of a quality consistent with that of the product. No structural alterations are required, nor is maintenance or renewal necessary. The installation is PERMANENT, and is given a TEN YEAR GUARANTEE.

THE COST is calculated on the number of feet of Hermeseal installed, plus that of any drop-seals or thresholds fitted, to which is added the cost of fitters' fares and/or subsistence as from the Company's works at Croydon, or from Branches. Any carpentry work that may be found necessary to render woodwork fit to receive an installation, or sealing work for cracks, skirting boards, etc., is charged for extra on an hourly basis, plus the cost of any materials used.



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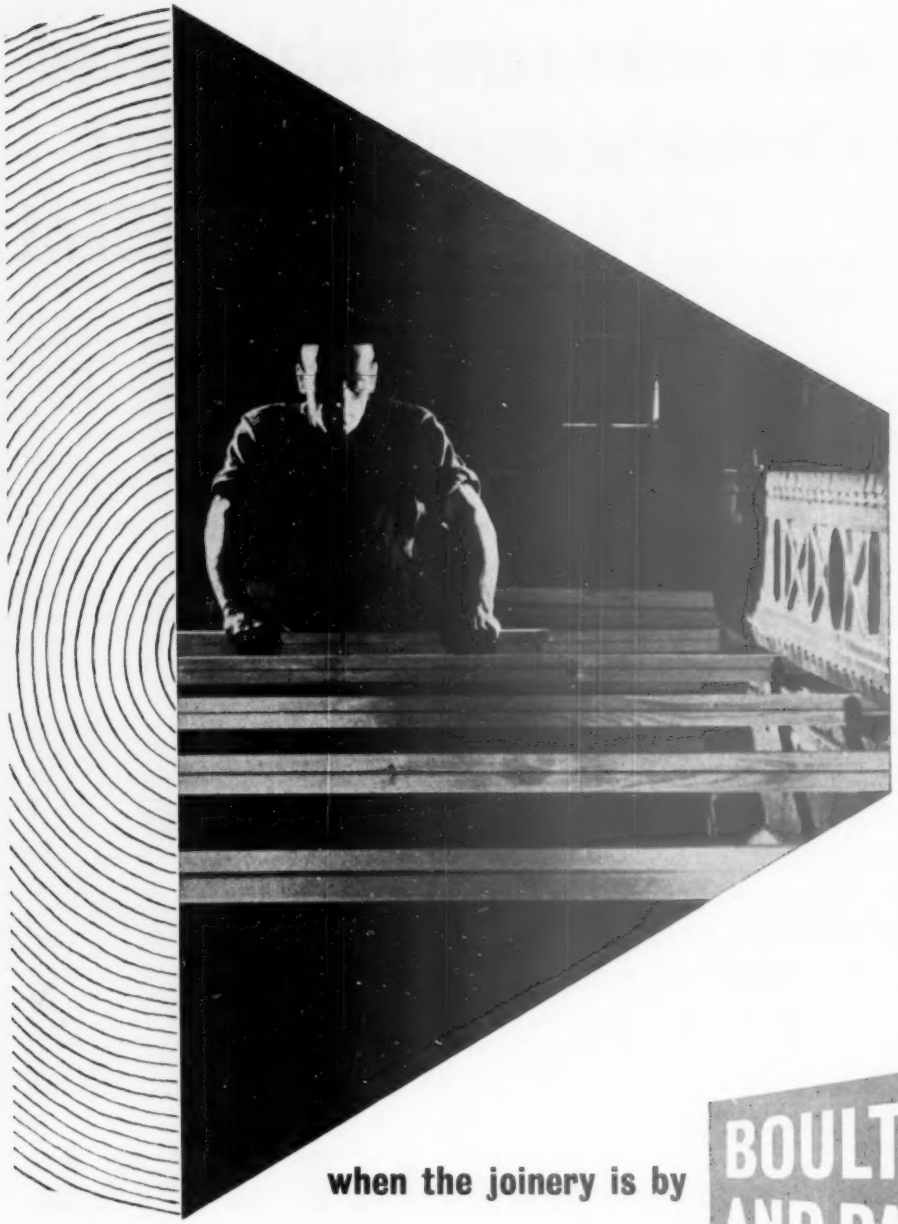

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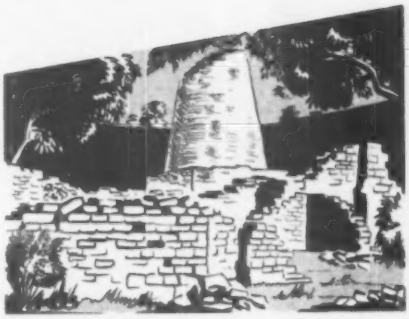
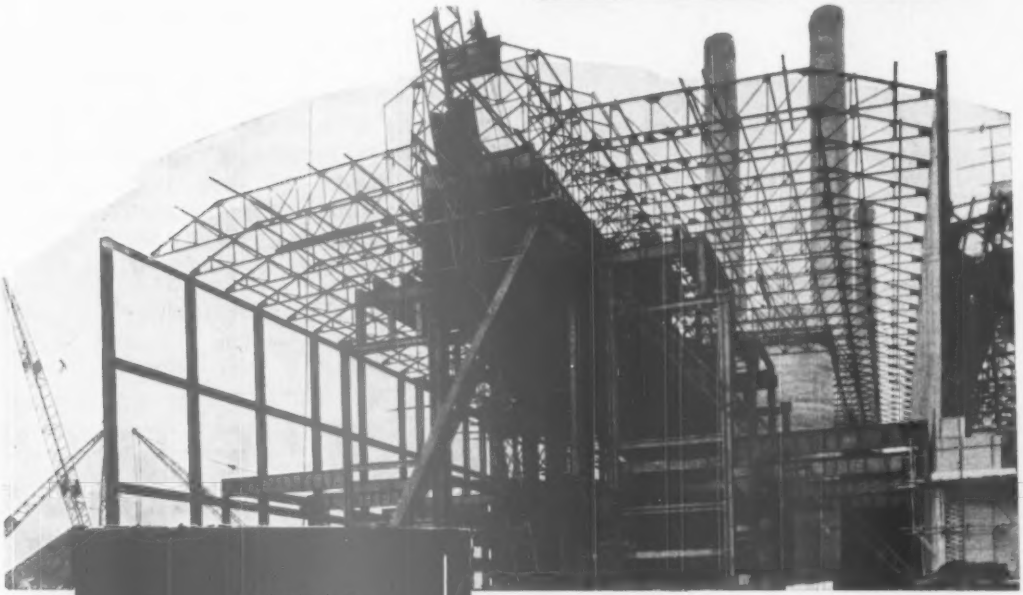
CRC93

Look back
and wonder

The ruins of Zimbabwe remain shrouded in mystery, the more so because the excellence of the building indicates an advanced civilization of which all trace has been lost.





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Building for posterity imposes heavy responsibilities on those in whose charge lies the selection of the builders. The confidence held in the exceptional resources of Edward Wood & Company Ltd. is reflected in the repeated orders for public buildings of all types.

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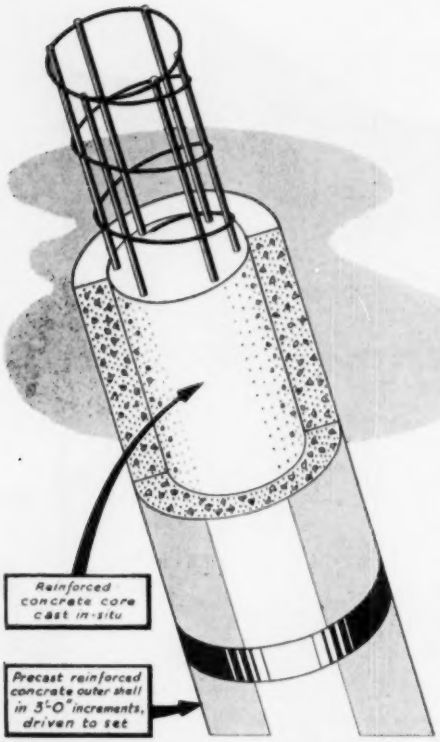

Driven Pile or In-Situ Pile?

This question can always be settled by specifying WEST'S SHELL PILES which combine a driven outer shell with an in-situ cast core.

WEST'S SHELL PILES are backed by the experience and research of a quarter of a century and possess an imposing record of achievement, reliability and versatility.

Full technical information is contained in our latest booklet which we shall be pleased to send on request.

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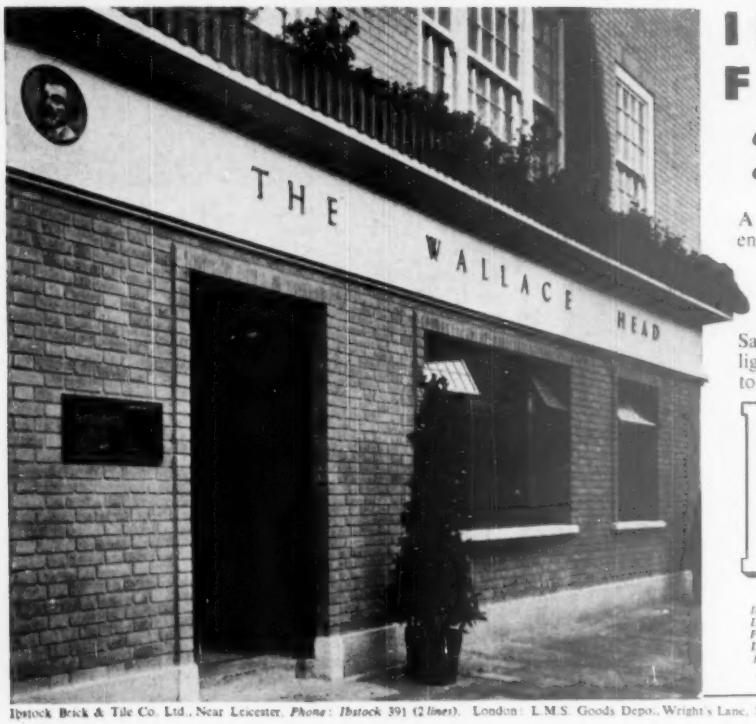

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ROAD SENSE

LAST week the Institution of Civil Engineers heard Dr. W. A. Glanville give his presidential address, choosing for his subject the problem of the roads. His talk was in a serious vein and made many points of comment and criticism of the present deficiency and even neglect of the road system of the country. In the last twenty years he suggested that we had made considerable advances in constructional technique and acquired considerable knowledge of soils and their behaviour, drainage of sub-soils, and he went on to say that the jointless concrete road, aided by the development of pre-stressed reinforcement, might yet come about.

Dr. Glanville's major emphasis, however, was not on what we had gained in knowledge, but on the vast fields of ignorance which still existed in respect of road statistics of all kinds. He felt, as indeed do many planners and architects, that scientific observation and research is not yet the common way of dealing with transport problems. Some of his figures were striking; for example, that the services provided by road transport cost the country about £1,000 millions a year and kept busy about 1¼ millions of people—in fact, he said, it was probable that the roads absorbed about 8 to 10 per cent of our industrial potential, as against the railways' 3 per cent. The total horse-power of the road transport industry would, he averred, equal ten times that of the British Electricity Authority. Another result of his analyses showed that expenditure on road construction and maintenance was ½d. per vehicle-mile, which represented a sum more than the cost of accidents or even the cost of the fuel expended.

Further stress was laid on the importance of operational research and the need for expert statistical and mathematical examination of results. What, in other words, do we know of the effect of Belisha crossings or of many other palliatives to risks which are tried out from time to time? Though the human factor and its coefficients of reaction is always with us and will affect many road issues, there is an urgent need for "propaganda and education based on scientific knowledge."

On the subject of road accidents, Dr. Glanville noted that in about 90 per cent of cases an "error of judgment" was a primary cause; but what good was this "knowledge" if nothing was added to experience by correct observations of the reasons for the errors of judgment? Bad lighting, bad layout, bad sight-lines are some of the contributory factors. It was estimated that the pre-war cost of accidents on the roads was about £60 millions a year; add to this the cost of waste in time, fuel and efficiency due to congestion on the roads and to the out of date state of many highways, and something over a tenth of the total cost of road transport would be accounted for as waste.

Very few will disagree with a conclusion that present roads and vehicles do not equate; there is very little doubt that vehicle efficiency is far in advance of the design of roads and that the design of vehicles is retarded by the need to design down to the state of roads. This is a critical comment on the state of both roads and vehicles; for, in spite of the rapid natural development of the latter as against the former, there are still too few standards to which the design of vehicles, or roads, have to conform. Such things as minimum standards for sight-lines, both fore and aft, from driving-seats or even the height of bumper-bars or the optimum size for main-road roundabouts and many other items, could be examined and determined with the end in view of increased safety and efficiency for all road users.

Dr. Glanville said "he would not be surprised

that, with strong action and co-operation in all these matters and with some sacrifice of present freedoms, it would be possible to reduce the number of accidents by 50 per cent within two years or perhaps even one . . . to reduce them by 50 per cent would save about £50 millions a year and prevent great suffering."

In our view the present apathy in these matters has become more or less chronic—a mere habit of modern thought—and the sudden impact of a statement like that of the President of the Civils can but do good; if some modicum of scientific concentration is not more fully focused on the problems of the roads neither the planners nor the public will be well served—even if they survive.

* * *

LONDINIUM REDISCOVERED

The City Fathers are contemplating a bit of Roman "research" in the vicinity of Ludgate Circus. This is not an announcement of another post-blitz "dig," scientifically to find out what happened in the London of Imperial Rome—oh, no, it's a new way of putting across such dull things for the entertainment of the public during the Great Festival of 1851 (beg pardon! 1951).

One of our contemporaries quotes one of the originators of this idea as saying that it is not to be a "synthetic sideshow, but an authentic reproduction." The object thus somewhat curiously referred to is to be a Roman house, occupied by a merchant and his family and slaves, all in the flesh and all accurately got up in every detail of furnishing, clothing, food and drink of the period—1,800 years ago. Why Rome is thus honoured and stressed, more, say, than the Normans (our other principal and latest invaders) is difficult to say.

The date mentioned for this (not) sideshow is A.D. 200, at which time "thay wosbirds," the Picts, were having a really good sort of strafe at the northern province, with such success that it must even have made itself felt in Londinium. It was not till A.D. 208 that Emperor Septimius Severus managed to find time to get over here and put "thay Pict fellows" in their place, rebuild the defences of Hadrian, probably contribute something to the municipal embellishments of the southern capital, and then die in his newly-founded city of Eboracum (York) in 211. However, perhaps the northern war of attrition did not affect our London merchant of Ludgate Circus so much as might be thought—perhaps even he was profiting by the conflict.

The matter, we understand, has now been referred to the Town and Country Planning Committee of the Court of Common Council.

THE INAUGURAL ADDRESS

delivered by Mr. A. GRAHAM HENDERSON, P.R.I.B.A., *at the Royal Institute, on November 14*

THE words "Inaugural Address" have a rather formidable sound, and even a twofold meaning. In my case they seem to call for more than initiating a new session of Institute activities. They seem to demand a statement of personal faith rather than an essay on a subject of professional interest. This consideration and the fact that this is my "free" night—an obviously tempting occasion for a Scotsman—may lead me to a rather rambling survey of architectural activities and ideals in endeavouring to justify my faith, which can be summarised in the statement that Architecture, in its widest interpretation, is a necessity for the well being of the community, and not a luxury, and, further, that it will increasingly be recognised as such in the future.

It is a fact—a regrettable fact—that this necessity is still far from being fully recognised by the public. To find the causes for this and the reasons for my faith it is necessary, I think, to examine briefly what an architect is and does. What is his position as an artist and how should we assess the quality of his work? How does he differ from artists in other media? Finally, what was his position in the past, what is his position at present, and what should be his future relationship to the community?

An architect is an artist who sets out to produce works of art in a medium vaster in scale, more permanent in character, more restricted by considerations of usefulness, and more affected by scientific progress than an artist in any other medium. He is the designer, not merely of buildings, but groups of buildings, which may extend to whole towns and cities, and his work must be judged in relation to these responsibilities.

To assess the value of a building, or group of buildings, as a work of art, all these factors must be taken into consideration, but particularly the last-named, where, over the course of history, new methods of construction have been evolved and from which new methods of architectural treatment have arisen.

This raises immediately the familiar question—Are we to regard all traditional styles based on outmoded methods of construction as themselves outmoded, a useless study for the young and a sign of hardening of the arteries in the old? I leave you to answer this question for yourselves, but, for what it is worth, my answer is "No," thereby probably confirming the younger generation in their judgment of me that I can be written off as a "dead loss" architecturally.

They are possibly right, but perhaps not for the reason they think. As it happens, I made early contact with what I can refer to broadly as the "Modern Movement." The partners in my firm at that time, over 40 years ago, were John Honeyman, John Keppie and Charles Rennie Mackintosh. The first-named had all the dignity of a Victorian gentleman, an impressive record of Gothic

Revival churches and scholarly essays in other styles. The second was robustly vigorous, often unconventional, and rejoiced in elaborate detail. The third strove to evolve new methods of expression and I need scarcely remind you he is now regarded as a pioneer in the so-called "Modern Movement." To work, from time to time, under each of them was a stimulating, if somewhat bewildering, experience.

To say that I was not affected by these various influences would be wrong. I think that it would be fair to say that my experience did induce at least a tolerant attitude towards the relative merits of traditional expression and experiments in other forms. My conclusion was then — and I see no reason to change it now — that the method of expression was incidental to the merit of the work done and that in the final analysis it was the personal conviction of the artist and the clarity of the message which he conveyed which determined the value of his work.

I have still the greatest sympathy with any artist's desire for a personal method of expression. In fact, he or she does not measure up to being an artist of any consequence unless some personal quality can be achieved. But a building is not a picture hung on a wall, removable at will. It is a permanent contribution to the amenities of a city or a town or the countryside, and the truest artistry may well be achieved by conforming to an existing pattern or to the traditions of a neighbourhood.

While I believe that architecture occupies, as a right, a pre-eminent position among the arts, and that the architect, in the expression of his art, should enjoy the same freedom as artists in other media, he differs from them in that he carries professional and other responsibilities which cannot be ignored. He has clients with possibly ideas of their own to deal with. He has constructional and other technical problems to consider. He requires craftsmen, and possibly decorative artists, to bring his conception to reality. His dreams have to be supplemented with drains and other mundane matters. He has to have, not only faith in himself, but induce someone else—his client—to have faith in him. He has to see that his client gets value for his money and gets it in a reasonable time. In addition to all these, he has one outstanding professional responsibility, namely, that to his brother architects.

Our code of professional conduct is the guide to this, and a very proper one, but no code, however strict, can ensure that common effort which is essential if our profession is to maintain and strengthen public confidence in the service we have to offer. It may mean sacrifices such as were made by members of this Institute to enable the profession, as a whole, to attain statutory recognition. It does mean personal service to this Institute and its Allied Societies.

If, in what I have said, I appear to have qualified my belief in the possibility of an architect being an artist, I would like to correct that impression. My conclusion is that, if he can fulfil all the professional responsibilities I have indicated, and maintain his artistic integrity, he is worthy of what I have claimed for him—a pre-eminent position as an artist and, what you will agree is equally important to the community, as a citizen.

I turn now to the architect's position in relation to the community. Broadly, it can be said that architecture, which, of all the arts, most closely affects the day-to-day life of the public, be they rich or poor, is the least understood and appreciated. The average layman can understand and appreciate factual representation of natural objects in pictorial or sculptural form, but lacking anything in nature to compare with the basic elements of architectural design, he cannot understand, and therefore appreciate it.

The plain fact is that architectural works, with notable exceptions—and even then not usually for architectural reasons—are, so far as the public are concerned, not "News."

With that as the general background at the present time, let us turn to the position in the past. I think that it will be agreed that the social conditions which enabled the great architectural monuments of the past to be created are gone for ever. They were usually the concentration of power and riches in the hands of

The unveiling took place at the R.I.B.A. on November 14, of the portrait of Mr. Michael Waterhouse, P.P.R.I.B.A., painted by Mr. David Jagger.

a few and the subjection of the many.

While we rightly hold these cultural treasures of the past as very precious, as giving us a standard of artistic values, this does not blind us to the fact that they were known to, and appreciated by, a very limited section of the community.

I need not take you over the history of the architect's relation to the community in the past. He was, broadly speaking, an individual — sometimes unknown — working for individuals. His position changed with the passing centuries and, while he was more fully recognised, it was still only by a limited class with cultural training and an appreciation of the arts.

You are familiar with the changes brought about by the Industrial Revolution of last century. A new class of clients had arisen with limited taste and a competitive desire for display. This led to raking over of the ashes of the past to find novel architectural features. To the public architecture appeared to have become a mystery, the high priests of which preached different doctrines and often shouted rudely at one another. It was still an adornment for the rich and an unnecessary luxury for the poor.

But beneath the surface the main stream of architectural development was going on. The battle of the styles still persisted, but style became more the servant and less the master. The profession became more conscious that its mission was to create, and not to imitate. Standards of professional education and conduct were evolved. The architect became more conscious of his responsibilities to the public in general and to his professional brethren.

From the end of the Victorian era up to the early years of this century there were gradual changes affecting both the social structure and the aesthetic outlook. Two world wars and scientific progress have accelerated these changes. The social pattern is now different. There is recognition of the vital necessity for healthy living and working conditions in pleasant surroundings. This and economic considerations have made us recast our approach to our professional and artistic responsibilities.

I have already referred to the fact that, at the present time, architecture still creates little public interest, but I think that that gloomy picture has shown signs of change, whether it is because of enlightened legislation which restricts the activities of the jerry-builder, or whether the difficulties at the present time of carrying out any building project have forced attention on the importance of those which we are allowed to build, there is no doubt that public attention is being directed towards us.

I presided at a meeting in this room recently when the Minister of Health presented medals for the best housing schemes in urban and rural areas carried out since the war. I described this as a very significant occasion, it being, as far as I am aware, the first time the State has initiated a comprehensive and continuing scheme for the recognition of architectural values.

There are many other indications of greater appreciation of such values—the extensive regional and town planning which is taking place. The creation of new towns. The development of industrial estates and the attention which is being focused on new schools. In all these it is now recognised that the architect has the most vital part to play, that they may be conveniently planned and soundly constructed, but without the quality of design and detail which he alone can give they will fail to realise their full purpose.

You may say that these projects are based largely on economic and other considerations and have little impact on public appreciation of architecture. I do not think so. The word "architecture," as I have said, includes many elements. The layman can understand only some of them. He cannot be expected to understand the importance in design of arrangement of masses, the proportioning of solids to voids, the appropriate placing of ornament, the maintenance of scale, structural requirements and many other points, but he can understand some of the elements which are essential parts of good design, such as convenience of planning, grouping in relation to surroundings, quality of construction and materials, suitability of detail and colour, and it is on the basis of these essentials that we must present our case to the public. We can only do so by ensuring that every architect is thoroughly trained to give these services, whatever his quality as an artist may be.

What I have in mind is not the service which can be given by exceptionally gifted men, but that which can be given by architects of average ability who, as in all other walks of life, provide the great majority of our profession.

We are justly proud of the work of exceptionally gifted men, and they will inevitably set a standard in design for the average architect. They will almost certainly exercise the greatest influence on the development of our art, but they are not the really important element in advancing our status as a profession in the estimation of the public.

They can, from certain points of view, be even a danger both to themselves and the profession. They tend to attract a disproportionate amount of work to themselves, with a possible lowering of their own aesthetic ideals to cope with this. They attract followers or imitators and the public are apt to accept all their work as good, as establishing a standard, whether it is, in fact, so or not.

Here, then, is the picture of the future as I see it and the foundation of my faith. On the one hand, a growing public awareness of architectural values and, on the other, a profession rising to a higher level of general competence through systematic education both in design and in all technical subjects. I believe that my faith will be justified and it is naturally to the younger generation I look principally for this justification. If they can take all that is good from the lessons of the past, equip themselves for their task, give of their very best in their work, and, above all, have faith in themselves, I am confident of the future of our profession and of the public reactions to it.

The gilded elephant representing Coventry's Coat of Arms about to be raised to the top of the 60 ft. City Standard in Broadgate which was the subject of the first A. & B. N. Detail Sheet.

EVENTS AND COMMENTS

LIVERPOOL VISIT

IN return for a few random remarks on being an architect I was richly entertained by the students of the Liverpool University School of Architecture last week. I may say that I was exceedingly flattered by my reception and the large audience which turned up to hear me. If not actually instructed by what I said the students made an excellent appearance of being amused.

Met at the station by a reception committee, one half of which was extremely attractive—no offence to the other half, I hope—I was escorted to the cathedral which I had not seen except from a distance for a long time. It was a dull afternoon exactly suitable for seeing the inside of this great building. The scale is terrific and the dramatic effect of the masses of moulded masonry shooting up to be lost in the darkness of the vaults was truly impressive. We had only a few minutes there and hurried on to Abercromby Square past the new physics labs. which appear to be built on part of the site of the Lutyens cathedral. I noticed that the red carpet put out for Professor Pontecorvo had been taken up.

If Abercromby Square is not as fine as Bedford Square it can at least claim to be one of the more architectural pieces of Liverpool and behind the facade of number 26 there are excellent studios and other accommodation.

After my talk I was closely questioned in the Common Room on all manner of subjects, including statements which appeared on this page, months ago. I shall be more careful in future.

I wanted badly to go on a ferry boat again and, with an astonishing lack of reluctance, a party of my hosts carried me off to Seacombe and back in the rush hour. I was very slightly disappointed. The ferries are not what they were when I was a boy. Now they are almost as large as liners. Then they were faster and fussier, or so it seemed. Getting on and off the boat is highly organised with a system of drawbridges to both decks. No time is lost and vast crowds embark in what seems a matter of seconds. Once on board, if you do not rush inside and sit down you circulate anti-clockwise on the upper deck as if taking your daily exercise crossing the Atlantic. The bashing which the waterside took during the war has not destroyed all the charming decorated cast-iron work, and, looking at some onion domes with spiked finials on the top of a drawbridge I wondered whether we were providing much for those who will come after us to admire or cherish or giggle about.

From the Birkenhead side of the river at night no one would suspect that a great city lies across the water for with the exception of the Liver Building there are few lights to be seen and no glare in the sky.

After an excellent dinner at the Adelphi, I was once more cross-examined at an informal party. Again I did my best to dodge the difficult ones. The discussion was continued over tea and biscuits in the men's hostel, where, in the temporary absence of the owner of the room, we rearranged the furnishings.

On my way to the station early next morning I was impressed by the amount of good Victorian architecture which I saw, and noted particularly some excellent lettering at street corners. Flat as large areas of Central Liverpool are, I hear rumours of more pullings-down including the shell of a fine church and a house by Decimus Burton. A protest is being organised by the students' society under its energetic antique collecting president, David Crowe, and more will be heard about it soon. Thank you, Liverpool; I enjoyed myself.

ATOMIC ARCHITECTURE

IN "Points from Papers" this week you will find a lecture given by Mr. E. J. Jeffries entitled the "Impact of Atomic Energy on Architecture." I understand that members of the Institute of Registered Architects to whom the paper was given were slightly disappointed to find the speaker telling them about the buildings at Harwell. Had I been there I should have been only too relieved to have been spared the ordeal of hearing once again of the impact of the atomic bomb on buildings.

The Government seems to be very reluctant to make any definite statement on shelter policy. In Switzerland where they always prepare for the worst, the Government is subsidising air raid shelters in new buildings. I have met one or two architects whose clients are looking for a lead. People with suitable basements are looking worried. It would be a service to put them all out of their misery.

"THE BUILDER" COMPETITION

I HAVE not yet seen the conditions and am still wondering whether I should enter. Having said a good deal about the housing being built at present

H.R.H. Princess Elizabeth last week attended a Reception of the Royal Designers for Industry, at the Royal Society of Arts. The photograph shows H.R.H. arriving accompanied by Mr. E. W. Goodale, C.B.E., M.C., Chairman of the R.S.A. Council.

I feel that it really is my duty to have a go.

I am extremely glad to see that Sir Stephen Tallents is to be one of the assessors. He is keenly interested in so many things besides architecture that his presence cannot fail to be a great assistance to the two distinguished architects on the jury.

FIVE YEARS AFTER

THE Dutch are making a remarkable job of reconstruction. They are naturally very proud of themselves. A series of before and after pictures entitled "Years of Reconstruction in the Netherlands" has just reached me. I reproduce one of the more dramatic pairs of pictures.

300,000 HOUSES A YEAR

THE Conservative housing programme sounds splendid but from what I hear they have no very clear idea of how they would bring such a thing about. If they are relying on a building free-for-all I think they would be bound to fail Apart from the cries of the would-be speculative builders I have heard little to support the theory that the private builder could do the job in the first year. I am furthermore quite sure that the standard of architecture supplied would be dismally low. Here I hasten to agree that houses are, as a short term argument, of more use than architecture to the house-less. Although I can see no reason at all why well designed mass produced houses should not be reasonable to look at, unless architects soon produce something which will give the answer they may easily be dumped overboard for tempers are shortening, and the enemies of the profession are strong.

The Government has often repeated that it will not reduce accommodation standards. It may be doing this with one eye on the next election. I believe that a reduction of standards is essential to provide the houses required at a reasonable cost, regardless of the constructional methods used. Supposing that a Conservative Government were returned, it would be committed to a violently energetic housing policy and very probably would start by reducing standards. More houses quickly would be popular but once in a house of reduced accommodation the average man would look with envy at the houses built by the Socialists. Propaganda could make this a powerful weapon in the hands of the opposition.

THE FORTH ROAD BRIDGE

THE borings for the proposed road bridge across the Firth of Forth have, like the working drawings, been largely completed. Construction of the bridge is held up owing to the needs of National Economy. Local opinion points out that the estimated cost of nearly six and a quarter million pounds is far less than the amount "wasted on the ground nuts scheme"—this idea seems to overlook the fact that the Government did not expect the ground nuts scheme to be such a flop.

Edinburgh is mad about the bridge and for once is in sympathy with Glasgow, equally mad about the banning of the under Clyde tunnel. Both point an accusing finger at the Festival of Britain.

STOP THAT COLONIAL OFFICE

NOW that the old Westminster Hospital is down, the view of the Abbey and its surrounding buildings is so vastly improved that it would be criminal to put a great slab cake of a building on the site. In a letter to *The Times* Lord Halifax asked that the Government's decision should be altered. Would it not be a wonderful thing if it were? A sign, certainly not of the times, when expediency reigns supreme, but a sign that at the centre of things there is still a human spark. Other letters are appearing in support of Lord Halifax's appeal. It is a real chance to make the Festival year doubly memorable.

MEET ME UNDER THE SKYLON

ARCHITECTS are adepts at keeping things in the family and it is not therefore very surprising that an architect's wife should have thought up the chosen name for the Vertical Feature. Mrs. Sheppard Fidler, wife of the Chief Architect of Crawley, thought of it after hearing a broadcast by Gerald Barry. In an interview she is reported as saying "I am very fond of words, I write poetry and articles and I suppose I longed to find a suitable word to describe the feature." I hope I am never interviewed.

My choice for the Vertical Feature was "Come lasses and lads, take leave of your dads, and away to the *Moypowell* hie."

NATIONAL ASSOCIATION OF PARISH COUNCILS

THIS very active and growing body held its annual general meeting at the R.I.B.A. the other day. Its reports for the last two years contain several points of interest. The Festival of Britain bus shelter scheme seems to be taking on well and should certainly not fail for lack of architects. The R.I.B.A. and its allied societies are co-operating, the Rural Industries Bureau is offering advice and the services of its Consultant Architect, and the Architectural Advisers of the Festival of Britain have been placed at the Association's disposal. They should certainly be very good bus shelters, almost as good as the house to be built at next year's Ideal Home Exhibition to the designs of half a million members of the Women's Institute.

For, one supposes economy reasons, the Government stopped all Village Hall building and restricted remodelling and maintenance in October 1949. The ban is still in force. It seems incomprehensible that such a restriction should be placed on the centre of village adult education and recreation when the most wildly extravagant shops are popping up all over the West End. Not building work, sir? Ah yes, of course, shopfitting.

ABNER

NEWS OF THE WEEK

Institute of Registered Architects

Annual Dinner and Dance

The annual dinner and dance of the Institute of Registered Architects was held at the Park Lane Hotel, on Friday, November 10. It was again an outstandingly successful function.

The toast to the Institute was proposed by Viscount Buckmaster of Cheddington, who, in the course of his remarks congratulated the Institute on a year of striking development. He said he was particularly interested in the Students' Advisory Service to be inaugurated in the New Year. This Service would be of the greatest assistance to architectural students in those parts of the country where educational facilities were somewhat restricted.

The President, Mr. William H. Scanlan, in his reply, said the architectural profession must be prepared to move with the times and adapt itself to changed conditions although traditions die hard. In some spheres the prevailing mood was one of fatalistic pessimism but this philosophy had to be vigorously fought by the profession, but when we examine the housing situation we find a most potent cause for such sentiments in the tragic disappointment of those who cannot find a home. It hurts the architect to feel so impotent in face of these conditions.

We sincerely believe, the President continued, that the present system of building licensing and allocation should be drastically amended both in regard to new buildings and the reconstruction and repair of existing buildings for the rapid deterioration of older buildings becomes increasingly serious each year. It is easier to get a licence for a cowshed than for a cottage. The policy of placing the major burden on local authorities whilst, perhaps, politically satisfactory, is, in my judgement, economically unsound.

Planning schemes whilst in many ways essential and desirable, are inevitably causing delay and uncertainty, which, in present circumstances, we cannot afford. I submit we should review the twin problems of housing and planning now.

Mr. Scanlan referred to the fact that Viscount Buckmaster and Mr. Justice Slade had accepted honorary membership of the Institute and the company drank the health of its first honorary members. Mr. Justice Slade returned thanks.

The toast to the Architects Benevolent Society was proposed by Mr. Vincent Burr who said this had been introduced to honour the Society now starting on its second century of charitable work. Mr. Robert Foster, Chairman of the Centenary Appeals Committee replied and asked for wholehearted support of the profession in the furtherance of the Society's scheme for the building of homes for aged architects and their dependants.

The toast to the guests was given by Captain Montagu Evans and replied to by Mr. S. Vyvian Hicks.

Deferment of National Service

With effect from January 1, 1951, the R.I.B.A. Final Examination and the examinations of the Schools of Architecture recognised for the Associateship of the R.I.B.A. and for registration under the Architects Registration Acts, 1931-38, will be modified to the extent that the Examination in Professional Practice will be held separately and taken after candidates have complied with the requirement that twelve months' practical experience in an architectural office or department, or in a suitable technical capacity on building work in course of construction, must be gained after passing an examination recognised for the Associateship or for registration before the Associateship or registration can actually be attained.

The Ministry of Labour and National Service have decided that extension of deferment may be granted to candidates affected by the above regulation. Application for such extension of deferment must be made to the National Service Deferment Boards on Form N.S. 294, and must be accompanied by a certificate confirming that a further twelve months' approved practical experience is essential before taking the Professional Practice Examination. This certificate will be supplied by the R.I.B.A. in the case of those candidates taking the R.I.B.A. Final Examination, and by the Heads of the Schools of Architecture in the case of students qualifying by means of a School course recognised for exemption from the R.I.B.A. Final Examination.

Georgian Group Prize for Measured Drawings

The prize of £25 for the best set of drawings of a Georgian building has been awarded to Norman Edward Hill, a student at the R.W.A. School of Architecture, Bristol. His subject was the Pittville Pump Room at Cheltenham.

The assessors were Godfrey Allen, F.S.A., F.R.I.B.A. (nominated by the Royal Institute of British Architects), Marshall Sisson, F.S.A., F.R.I.B.A. (nominated by the President of the Royal Academy) and S. E. Dykes Bower, F.S.A., F.R.I.B.A., (nominated by Georgian Group). There were eleven entries.

COMING EVENTS

R.I.B.A.

● November 21, at 6 p.m. "Sanitary Services: Their Effect on the Planning and Design of Buildings." Speaker: F. L. Barrow.

R.I.C.S.

● November 21, at 6.30 p.m. At Grosvenor House. Annual Dinner. Speaker: The Right Honourable The Lord Morrison.

T. & C.P.A.

● November 22, at 1.15 p.m. "Industry and the Citizen." Speaker: Ian Mikardo.

R.S.A.

● November 22, at 2.30 p.m. "Cities Without Smoke." Speaker: Albert Parker.

The Ecclesiological Society.

● November 23, at 7 p.m. "Some Italian Mosaics." Speaker: E. A. Remnant.

CORRESPONDENCE

We Must Have More Apprentices

To the Editor of A. & B.N.

Sir,—I am pleased to see that you have taken the opportunity of a recent speech by the President of the L.M.B.A. to bring forcibly before the Industry once more the importance of the apprenticeship question.

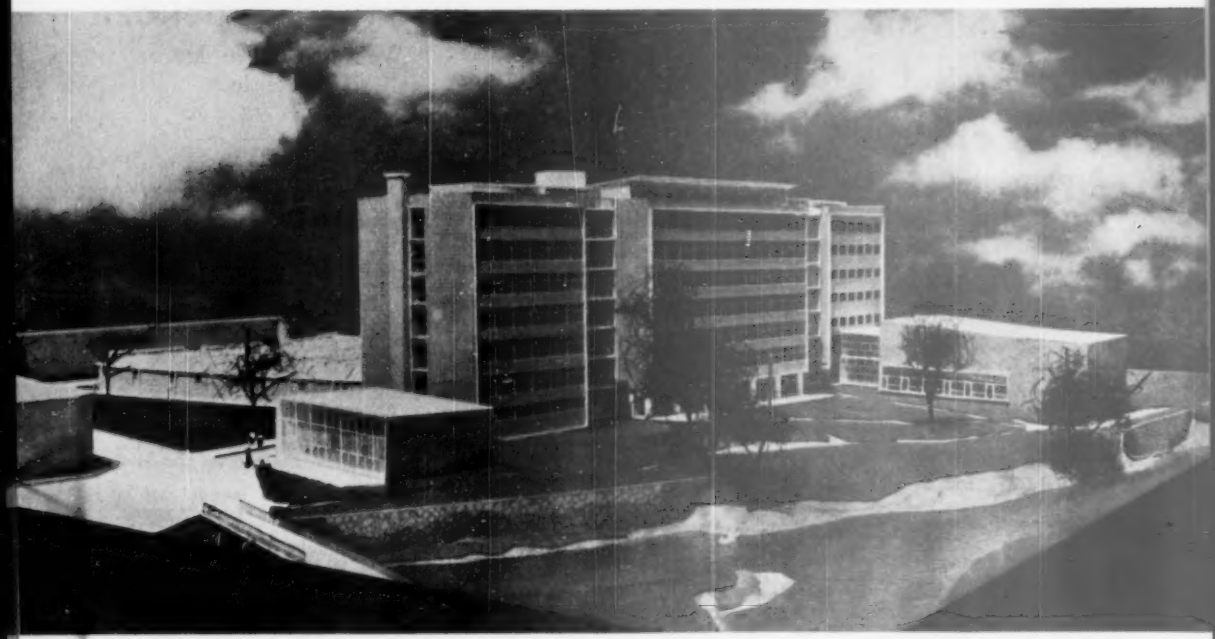
I am bound to say that there are certain statements in your leading article of November 3 on which I should have liked to cross swords with you, but my immediate purpose is to draw attention to a misconception which you obviously hold from your views in the eighth paragraph. In speaking of the Apprentice Master Scheme you say that employers see in this an interference with the rights of private enterprise, you refer to the L.C.C., and you believe that the L.M.B.A. itself has opposed this kind of scheme.

May I respectfully submit that in these views you are entirely wrong. Whilst many of us still believe that the best form of training is with the private employer in the firm in which it is hoped the lad will make his future, there are others of us who believe that there is a good deal to be said in these days for starting off the apprentices on a constructive job which they can see and in which they can have a joy of participation. So much of the normal building work of to-day is of an austerity type or is concerned with patching work after war damage repairs and these do not constitute good training. By the Apprentice Master Scheme, however, it will be possible in the future for the men who have worked on it to look back on those houses with some pride, feeling that they assisted in the building of them in the first months of their apprenticeship. Thus they provide at least a useful stop-gap and many would hold that they are of even greater value than that.

I must at once make clear that the L.M.B.A. have strongly supported Apprentice Master Schemes since their inception and do not see in them any suggestion of interference with the rights of private enterprise. Since the inception of this system London has been responsible for operating separate schemes in thirty districts. 941 boys to date have entered the Industry through the medium of these schemes and they would otherwise have been lost entirely to the building trade. So far 756 of these have been transferred under the defined arrangements to normal apprenticeship. Every Apprentice Master in London has been, and still is, a member of the L.M.B.A., and a grand job of work they have done. Three of these schemes have been adopted on works being done for the L.C.C., the whole of the remainder being houses for Local Authorities.

As a result of this experience the L.M.B.A. still strongly supports the operation of Apprentice Master Schemes and continues to offer the services of its members in this connection. I feel it is important to correct the impression which must have been left in the minds of your readers.

I am, etc.,
G. H. A. HUGHES,
Director, L.M.B.A.



General view of the model from the riverside.

NEW TECHNICAL COLLEGE, BURTON-UPON-TRENT
for the Borough Council Education Committee

Director of Education: A. H. BLAKE
Architects: RICHARD SHEPPARD & PARTNERS
Assistant Architect: WILLIAM MULLINS

THE site for this new technical college is on the north bank of the River Trent in a position at present hemmed in by nondescript buildings. But if the proposed Town Planning Scheme matures in the future, the new college, potentially one of the biggest single buildings in Burton, will be brought into greater relief against the natural features of the river, trees and aspect.

The estimated number of pupils who will use the college is 3,000, including full time, evening and part time students in Commerce, Engineering, Building and General.

The schedule of accommodation agreed with the Ministry of Education comprises some 73,000 sq. ft. of classroom and laboratory space and 28,000 sq. ft. of workshop.

It would be possible to design this college in two or three storeys with single storey workshops; but it would mean covering most of the site with buildings and restricting much of the outlook to views across courts. It is also possible to group the laboratories and practical rooms in one block and the general teaching accommodation (general and commercial rooms in another); the first could have close access to the workshops. This method was seriously considered and discussed with the client at an early stage. It was criticised by the Ministry who wished to see the college concentrated so as to bring all departments into a close relationship with

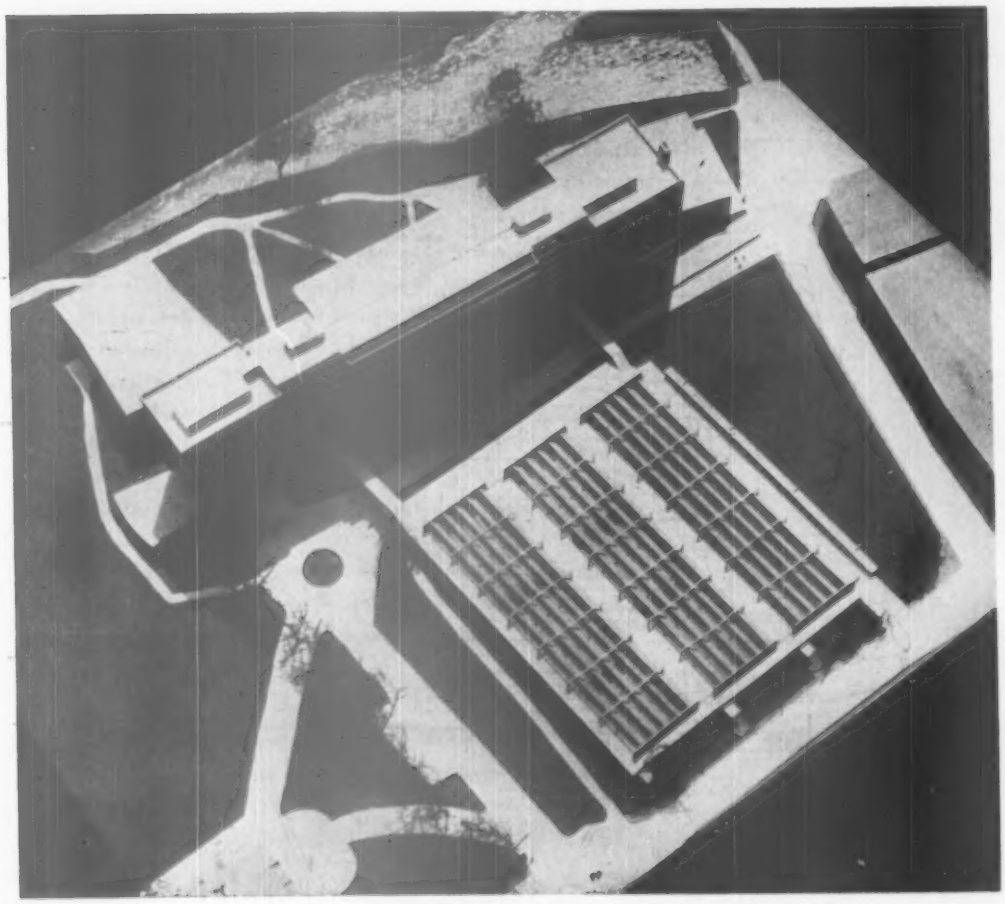
each other; another effect of which is to economise on services, foundations and external walls.

In the present scheme the workshops are placed in a separate block sited in the more noisy position adjacent street and square, and with easy access for materials. They have north lighting, cross ventilation and their noise is no disturbance to the rest of the college. Access is through the main entrance hall to which the work shops are connected by low enclosed bridges; an independent entrance would have been difficult to supervise.

In the main block, laboratories and classrooms have east-west aspect, cross ventilation and minimum noise and external interference. The Assembly Hall and L-shaped lecture hall, with easy access from main square, will also be available for use by the general public. Staff rooms have direct access from hall and allow good supervision of departments. Their aspect is quiet and the library is placed over this block to avoid disturbance from other departments.

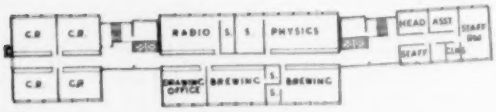
Students' access is from main square; their common rooms overlook the river.

General view of the model from above



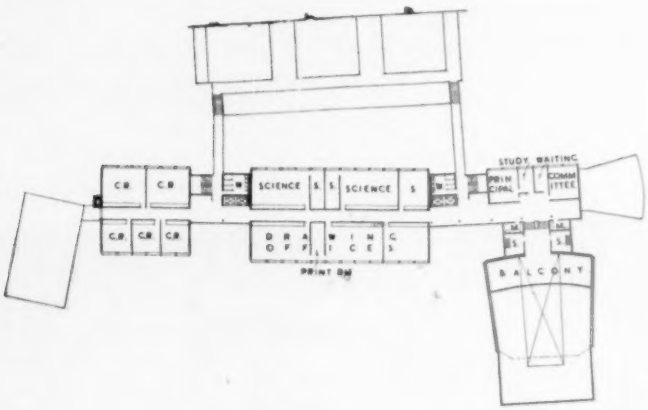
SEVENTH FLOOR PLAN

SECOND FLOOR PLAN



This plan is typical. The arrangement of teaching, practical and staff rooms follows up on each floor. The staff and practical rooms are related horizontally while classrooms are pooled.

FIRST FLOOR PLAN



GROUND FLOOR PLAN

APPROX. SCALE
100 Ft. to 1 Inch

NEW TECHNICAL COLLEGE BURTON-UPON-TRENT

OLDBURY COLLEGE OF FURTHER EDUCATION

For Worcester County Council Education Committee

Director of Education, Oldbury: R. Y. LOGAN

Architects: RICHARD SHEPPARD & PARTNERS

Assistant Architects: Gordon Taylor & Robert Bailie

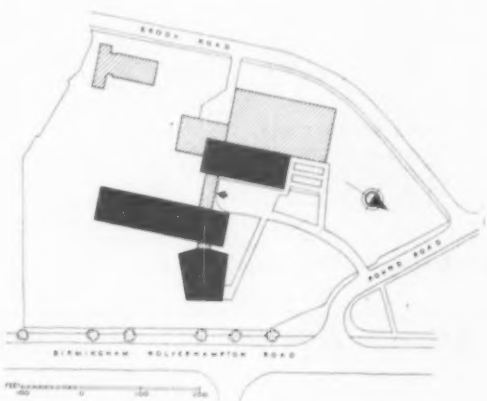
THIS new college is to occupy a flat site bordering the main Birmingham-Wolverhampton road and directly opposite the site for the new Oldbury Civic Centre. The locality is in the new part of Oldbury which is not yet fully developed. The site has no interesting features and considerable planting is envisaged, some of which is being put in hand this year.

Because the project will have to be built in stages, it was decided to design the first stage as a complete building architecturally, and not as a portion of a large building. This decision was influenced by the fact that in the first stage all the accommodation would have to be technical while in the later stages the accommodation would include communal provision for Dining Room, Assembly Hall, Gymnasia and Youth and Adult Wings, and there was no guarantee under present conditions that this accommodation would follow on as a matter of course. Moreover, change of outlook will no doubt take place as Further Education develops, and later blocks planned as complete buildings, will be allowed greater freedom of expression than would be the case with additions to a block already built. There would be savings too in the cost of temporary works.

The workshop block forming the first stage of development has been kept as flexible as possible to allow for changes in the curriculum of the College. Workshops are arranged with stores on one side, forming approximately 20 per cent. of the shop area. A standard width of 32 ft. per room has been adopted with north lights on a 10 ft. grid running parallel with the room width.

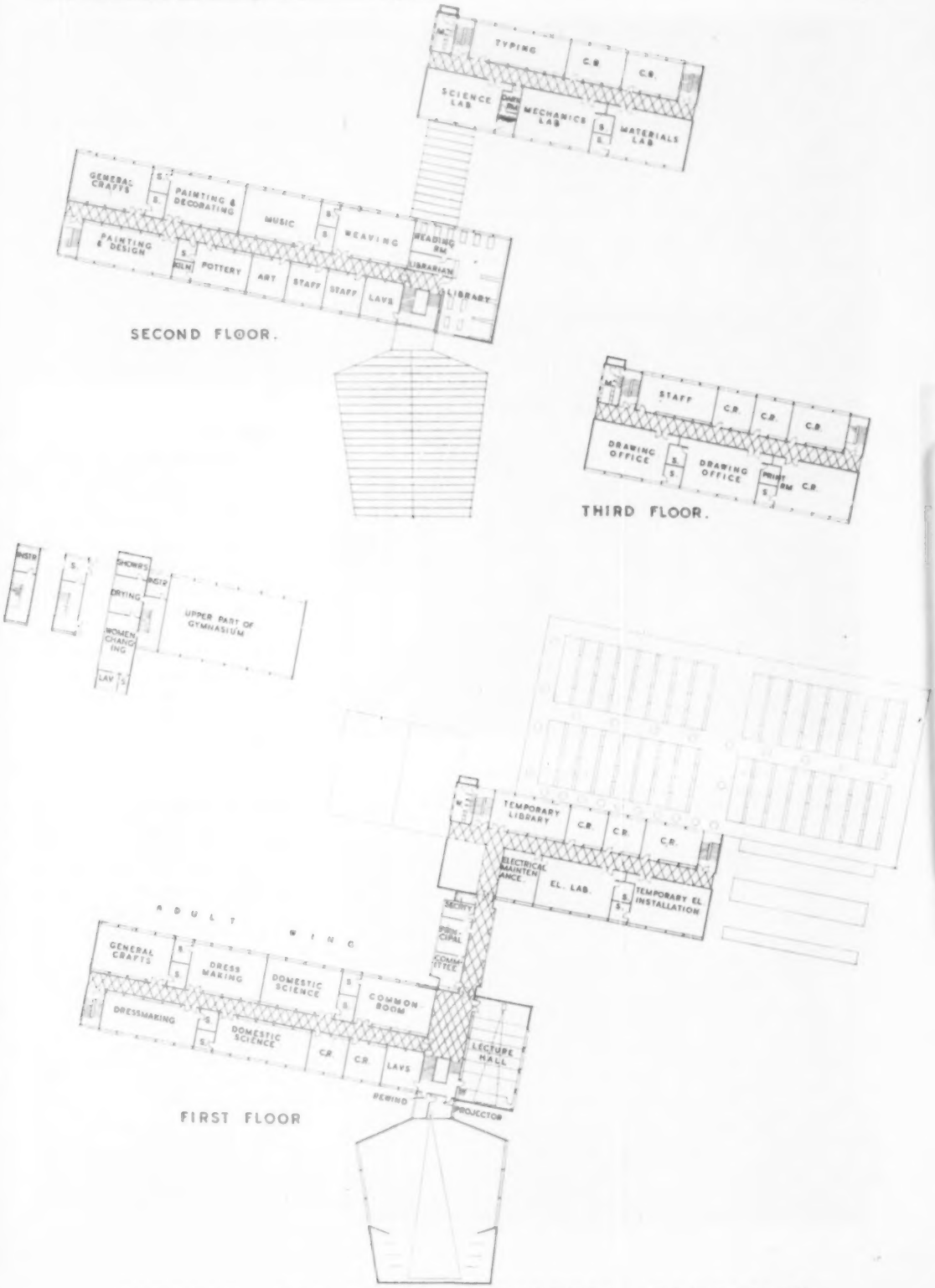
The construction is R.C. gutter beams and slab roof supported on 13½ in. brick piers, with non-structural dividing partitions under beams to allow flexibility of room size.

The bearing strata of the subsoil on the site is weak. Therefore the main block of this scheme will be a framed structure designed so that should settlement take place in one part of the block the remainder of the block will support that area; the building will move as a whole if there is settlement in a number of places.



BLOCK PLAN

North-east elevation of the College


TYPING
C.R.
C.R.
SCIENCE LAB.
MECHANICS LAB
MATERIALS LAB
GENERAL CRAFTS
PAINTING & DECORATING
MUSIC
WEAVING
READING RM
PAINTING & DESIGN
POTTERY
ART
STAFF
STAFF
LAVS
LIBRARIAN
LIBRARY
SECOND FLOOR.
STAFF
C.R.
C.R.
C.R.
DRAWING OFFICE
DRAWING OFFICE
PRINT RM
C.R.
THIRD FLOOR.
SHOWRS
DRYING
WOMEN CHANGING
LAV
UPPER PART OF GYMNASIUM
TEMPORARY LIBRARY
C.R.
C.R.
C.R.
ELECTRICAL MAINTENANCE
EL. LAB.
TEMPORARY EL. INSTALLATION
SECRY
PRINCIPAL
COMMITTEE
ADULT WING
GENERAL CRAFTS
DRESS MAKING
DOMESTIC SCIENCE
COMMON ROOM
DRESSMAKING
DOMESTIC SCIENCE
C.R.
C.R.
LAVS
LECTURE HALL
REWIND
PROJECTOR
FIRST FLOOR
OLDBURY COLLEGE OF FURTHER EDUCATION

NEW CANTEEN FOR MESSRS. AERO RESEARCH LTD. DUXFORD, CAMBRIDGE

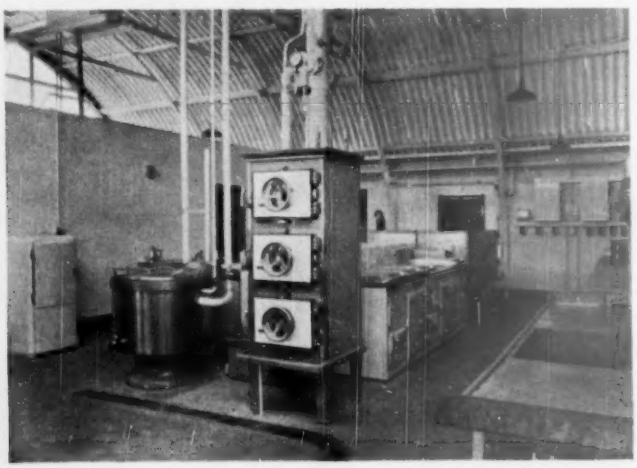
ARCHITECTS: H. C. HUGHES & PETER BICKNELL, M/M.A., F/F.R.I.B.A.

Programme

The clients asked for a semi-permanent structure for use as a canteen for 5-10 years and afterwards as a store.

The accommodation required was a self-service canteen to seat 200, Directors' and Visitors' dining rooms with a kitchen to serve all three, a smoke room and a games room, with provision for future terraces, gardens, and swimming pool.

Owing to the temporary nature of the building, the cost of the structure had to be kept down to the minimum but the equipment at present installed in this kitchen is that which will in the future be transferred to the permanent canteen.



Above: A lean-to in the Canteen showing free-standing curved T-ribs. Below: The kitchen with back-to-back range of Aga cookers behind the boiling pan and steaming oven.

Construction

The building consists of a main area of 34 ft. span covered by a semi-circular "Iris" roof formed of 3½ in. x 3½ in. curved T-ribs at 7 ft. centres, with a 10 ft. wide lean-to on each side. The lean-to roofs are supported on T-beams spanning between R.S.J.s and the outside walls. Steelwork is exposed and the curved T-ribs run down to the floor except where they die into brick piers supporting R.S.J.s. The roof covering is curved corrugated asbestos sheeting, interrupted on the north side by patent glazing. Rainwater goods are also in asbestos.

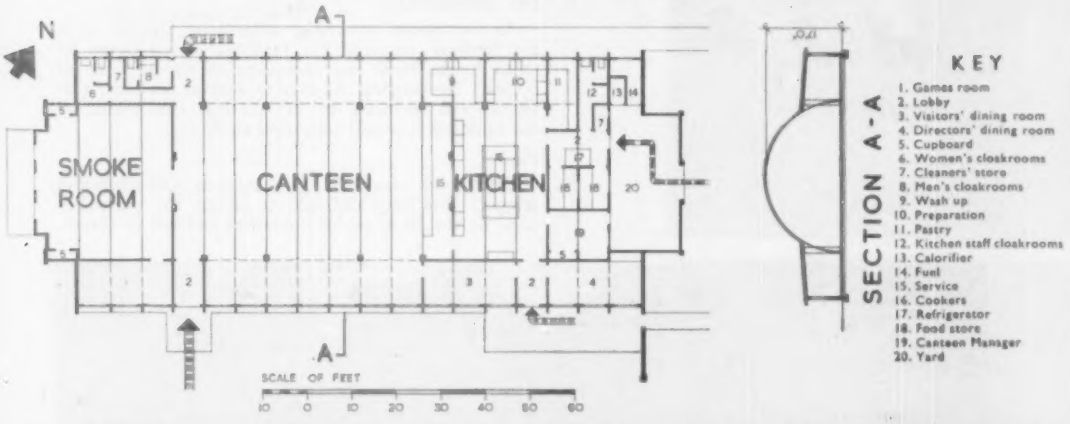
External walls and partitions are 4½ in. brickwork unplastered. The concrete floors are finished provisionally in granolithic, until a better floor finish can be laid.

Flush doors are hung in steel door frames, windows are steel except in the gables where they are wood.

Services

The kitchen is equipped with Aga cookers; electric grill, potato peeler, refrigerator and potato mixer. Steam provided at the factory boiler house, serves hot closets and steaming ovens; and, through a calorifier, boiling pans, dishwasher, sinks and urns.

South side and West end showing gable window to the Smoke Room



East end of Canteen, showing the yard and gable window to the Kitchen

General view of the site. The house on the extreme right was designed by R. G. R. Haggard in association with L. W. Cook, A.R.I.B.A.

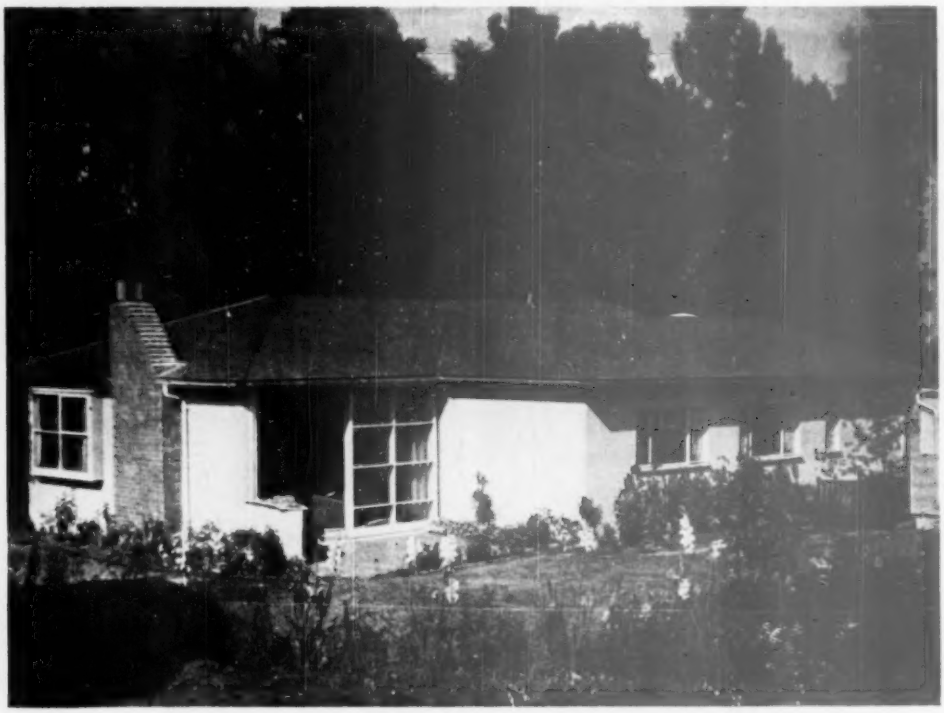
"CEDARWOOD" CHURCH ROAD PURLEY

Site Restrictions

As the owner wanted a cedarwood shingle roof, the byelaws required the building to be twice its mean height from the boundary of the plot at all points. By keeping the roof as low as possible, this figure was reduced to 20 ft. but the width of the building was still restricted to 30 ft.

Plan

Total floor area of 930 square feet, including the garage. The long and narrow layout has been dictated by the 30 ft. width limitation referred to above.



Structure

Floor of 4 in. concrete. Walls of foamed slag concrete, 9 in. thick with 2 in. cavity. Finished externally with sprayed vermiculite. Partition walls breeze blocks. Roof covered with cedar shingles.

Services

Open fires in main bedroom and living room. Power points for electric fires in all rooms. Water heating by dual electric heater under the draining board. Extractor fan over gas stove. Electric heater in airing cupboard.

External Finish

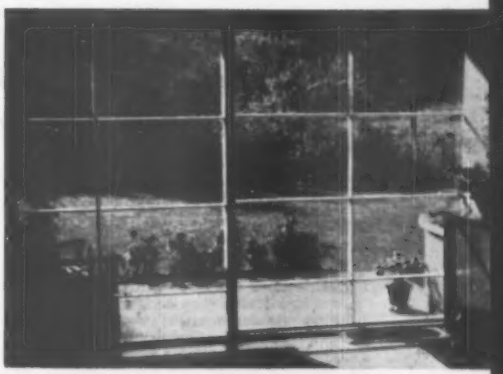
Pink sprayed vermiculite textured finish on walls and soffit. All paintwork cream.

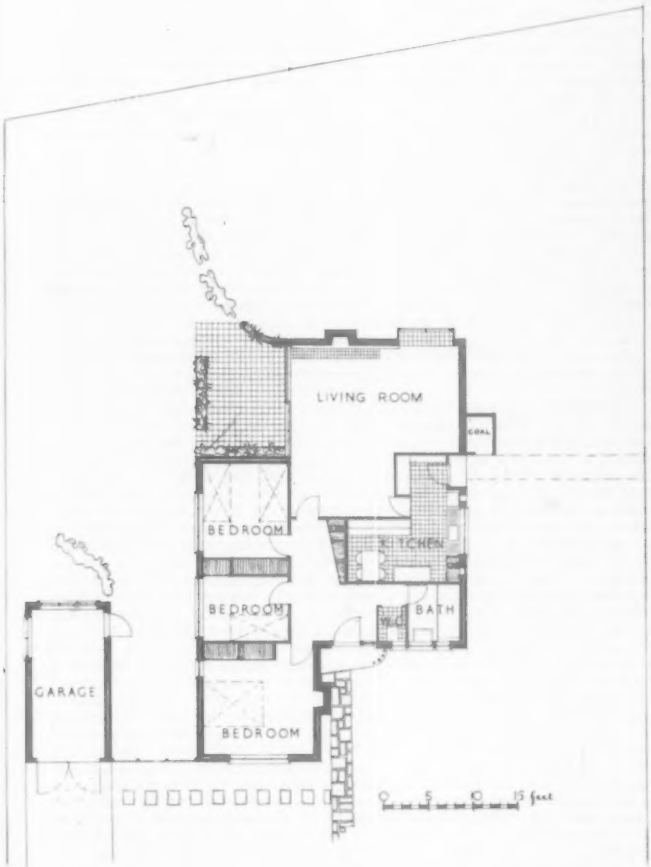
Internal Finish

Floor of living room, hall and main bedroom covered with hardwood block. Other rooms mastic tiles. Walls two-coat plaster, finished distemper. Living room fireplace of buff quarry tiles with waxed mahogany surround.

Cost

£1,700 plus cost of land.





designed by

R. G. R. HAGGARD

A.M.I.C.E., A.M.T.P.I.

POUR

POINTS FROM PAPERS

THE IMPACT OF ATOMIC ENERGY ON ARCHITECTURE

Report of a lecture given by Mr. E. J. Jefferies, of the Atomic Energy Research Establishment, Harwell, at the Royal Society of Arts to a meeting of the Institute of Registered Architects on November 3

THE lecturer described principally by reference to what had been done at Harwell, the types of building required for housing apparatus for the production of radioactive materials and for their conversion into energy, either as power or as heat.

"In the early part of the programme in this country," he said, "use had to be made of existing buildings, suitably converted; but more recently new buildings, designed for specific purposes, have been required, and the nuclear engineer has had to call in experts from many fields, including architects. You may wonder, therefore, whether developments can be foreseen which will alter the course of your normal practice. Our establishment has now been in operation for five years, and much experience of the design, construction and maintenance of buildings for use in the atomic energy field has been gained. In this, the architectural and engineering staffs of the Ministry of Works and numerous contractors have co-operated with the Ministry of Supply designers. Some elements in our present practice have been borrowed from established principles in other fields, and others have been adapted from war-time programmes in this country, Canada and the U.S.A., but in addition we feel that substantial contributions to the art have been made at Harwell."

There were, he continued, many misapprehensions in the public mind as to the forms in which energy derived from nuclear reactions was likely to become available for the use of mankind. Apart from the use of small quantities of radioactive substances for purposes of research and process control in industry, there was the possibility of producing large amounts of energy from very small quantities of certain materials by the conversion of matter into energy. It was a common mistake, however, to under-estimate the scale on which energy would be produced in each unit. It would not be possible to produce economically a few kilowatts of power for domestic use; the smallest economic unit would be equivalent to a medium-sized power station. Moreover, the energy released in a nuclear reactor took the form of intense and destructive radiations which must first be changed into heat, which would then be employed in a conventional manner, either in a district heating scheme or a factory or by conversion into power.

"The nuclear reactor," he said, "is in effect, a furnace in which fissile material is burnt in place of coal or oil, though the amount of material destroyed will be very small; about an ounce will produce a thousand million kilowatt-hours. The total weight of the furnace, however, must be large, owing to the need for a large mass of inert material round the reactor to form a shield against the intense radiations. The weight will range from fifty to several thousand tons, depending on the type of reactor, what it is to be used for, and the materials of construction chosen.

"In the past, the appearance of our towns and countryside has been subject to radical change as new sources of energy have been discovered and new means of using them developed. The internal combustion engine has altered the appearance of our roads and even the layout of our cities. Without lifts, buildings of more than a few storeys would not be practicable. On the other hand, as far as can be foreseen at present the effect on the appearance of the country due to the utilisation of nuclear energy will be negligible. The external appearance of power stations may be almost unchanged; even the tall chimneys may still be required for ventilation purposes. The factories needed to process the nuclear fuel and the waste products from the reactors are not likely to differ in appearance from the normal run of chemical factories and metallurgical works. Atomic energy will not have any direct effect on our architecture, whether public, commercial, industrial or domestic, nor even on the layout of our towns, because no new principle in the distribution and application of power is involved.

"It is not until we come to a detailed examination of the problem of designing buildings specifically for the handling of radioactive material and nuclear processes that we find any notable impact of atomic energy on architecture, and even here it is in general only a question of extending principles already well known in the chemical industry, in industrial radiography and in medicine. The problems arose because radiations from any radioactive substance can be a source of danger if not kept under control. The effect of radiation on the body has now been studied in considerable detail; strict tolerances have been laid down, and a comprehenisve monitoring system is used to ensure complete safety. We must therefore make sure that within very fine limits all our radioactive material stays where we want it to be. This is not easy, because some elements have to be controlled at concentrations below one part by weight in one thousand million parts of air or one million million parts of water. This means that all our dust and fume control systems and our air and water feeding systems must operate at levels many times better than are demanded in normal industrial practice, and that routine tests must be made to see that they continue to do so.

"The controls which may have to be incorporated in a building to ensure proper working conditions may be roughly classified under five headings:

(1) Control of air-borne activity by ventilation.
(2) Control of water-borne activity in the drains.
(3) Control of radiation.
(4) Control of cross-contamination.
(5) Provision for decontamination.

In each case the problems differ in magnitude according to the type of work to be carried out in the building, whether laboratory work, the preparation of fissile material to use in a reactor, the treatment of waste products from a reactor, and the operation of a reactor, and also according to the amount and kind of radioactivity to be handled.

Ventilation

"This has two main objectives. The first is to provide sufficient air flow to ensure that harmful concentrations of radioactive material cannot build up anywhere where they can be inhaled. The allowable amount of air contamination is strictly specified and is checked continuously. The second is to ensure that material which unavoidably or accidentally becomes air-borne cannot migrate to a place where it may interfere with other work. In many cases a large volume of air has to be supplied to and removed from a building in order to achieve sufficient control, and the routing of the air streams and the housing of the very large air ducts needed will largely determine the layout of the building."

The lecturer then showed a number of slides illustrating what had been done at Harwell in this respect. The laboratory buildings appeared to be mainly structures to house the ventilating plant with a small space underneath for people to work; more than half the space as well as more than half the height was occupied by the ventilating plant and services, and the main air trunks were roughly 12 feet square. For cleaning the air before discharging it into the atmosphere conventional devices such as cyclones, electrostatic precipitators and fabric filters might not be adequate, and new and improved apparatus might have to be developed. With 60 to 120 changes of air per hour and a velocity of 150 to 300 feet per minute, special precautions must be taken to avoid draughts. Air extrac-

tion was entirely through the fume cupboards, and the pressure at that point was less than the pressure in the corridors, so that when a door was opened more air came in from the corridor. The air was not recirculated. The air ducts were not screened with a lead lining; ¼-in. plate was sufficient, in view of the tolerance figure of 1 microgramme per cubic metre.

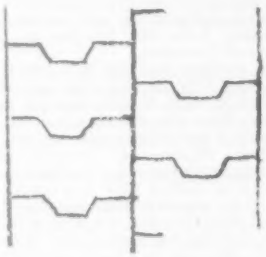
Water Disposal.

"Water disposal," the lecturer said, "may be a serious difficulty in the design of a building, and particularly in the case of radio-chemical buildings. The disposal of radioactive waste is controlled by the Radioactive Substances Act, 1948. Process liquors arising in the course of normal operations with known amounts of radioactive material are kept under strict control within the plant and never allowed to get into the ordinary drainage system. Any water from sinks, etc., where contamination is remotely possible is collected into tanks for sampling, monitoring, and decontamination if necessary before disposal. The piping must be arranged to allow frequent inspection for leaks and for any leakage to be collected and put back into the system. We can check, by the arrangement of tanks, every gallon of water. It is usual to consider as contaminated all water used in any apparatus containing radioactive materials even if the water has been in a separate and closed system all the time.

Control of Penetrating Radiation

"This is achieved by an extension of the methods common in radiography and radiotherapy, by having between the source of the radiation and the operator a sufficient weight of material to absorb the radiations. Alternatively, in the case of small amounts of activity advantage can be taken of the inverse square law, and we keep far enough away from the danger area to ensure that the radiation intensity to which we are subjected is below the tolerance level. For neutron radiation such as arises from nuclear fission in a reactor the absorption depends on the energy of the neutrons and the atomic weight of the elements forming the material of the shield. For alpha and beta and gamma radiations arising from radioactive substances the effectiveness of the shield is largely a function of its total mass. Gamma radiations are the most penetrating, and to shield against these almost any material will serve; those commonly used are lead, iron, steel, and concrete. Thicknesses up to 3 or 4 feet of concrete are commonly used, and occasionally up to 7 feet. Sometimes, in order to achieve greater density, and therefore greater shielding value, pyrites is used in the concrete or small scrap metal may be mixed with it. The shielding material may be used as a specially fabricated chamber to house the plant and equipment, and constructed as part of the apparatus or as part of the building, or it may be used as unit blocks which can be built up where required in the shielding walls. Remote control devices are then needed to enable the apparatus to be operated. Shielding material bombarded by neutrons may become radioactive, but bombarded by alpha, beta and gamma rays the radiation degenerates to heat, so that except in the reactor there is no effect."

Several slides were then shown to illustrate the use of material for shielding purposes.



When building unit walls for special purposes in odd places, the lecturer said, they occasionally used concrete blocks 12-in. square and staggered in the manner shown, while another type of concrete block was 2 ft. square and 6 ft. in length. For laboratory work in a fume cupboard interlocking lead bricks were commonly employed, 4 in. thick and 4 x 6 in. square. The wall was built up to head level, the operator working with bent tongs over the top or with rods through the wall, and observing what went on in a mirror.

"The need for heavy shielding walls," he continued, "when using gamma emitters in particular leads to very heavy floor loadings, and this must be borne in mind very early in the design of a building, as it may affect the layout in multi-storey buildings. Radiation from a source proceeds in all directions, and it may be necessary to provide shielding on all six sides of the source to protect people in other parts of the building, or even outside.

Cross-contamination

"Cross-contamination, or the unintentional transfer of activity from one place to another, may be caused by activity being air-borne, in which case the ventilating system must be adequate to control it, or it may be carried by the shoes and clothing of personnel, or by the wheels and outer surfaces of transport containers. In the last case it can be controlled by choosing the right layout for the various operations in the building. It is usual to arrange that distinct areas of a building shall be considered as 'hot' (containing large amounts of radioactivity), 'warm' (containing small amounts), and 'cold' (containing none). These areas are so disposed that the radioactive materials do not pass from one to the other, except possibly in sealed containers, and that other materials do not pass from a 'hot' area to a 'cold' area without monitoring. The access ways for personnel going into and out of 'hot' areas have separate clean and dirty changing rooms with showers, wash-basins and monitors, so that operators, can be sure that they are not carrying any contamination on their clothing or persons.

Decontamination

"Decontamination of a room or a building in the event of an accidental spillage of radioactive material may be a very difficult problem, and may involve the demolition of extensive portions of the structure, or even the abandonment of the area affected, temporarily or permanently. It may be necessary to chip out 6 inches of concrete if you spill something on it. For this reason, careful consideration must always be given to ease of cleaning when arranging design details. It must be possible to scrape every square inch of surface in a laboratory. Rounded corners, absence of surface projections and absence of inaccessible nooks and crannies, and the use of non-absorbent, smooth surfaces all help. Consideration must be given, in the design of a building structure, to the possibility of the development of cracks in the plaster due to differential expansion or settling of foundations, and steps must be taken to minimise and localise the effects.

"Surfaces used, particularly at Harwell, include non-corroding metals, glass, plastics, hard enamel paints, waxed lino and bitumen composition. In some cases where contamination is inevitable, such as the inside of a fume cupboard or of an air extract duct front, it may be advisable to finish the surface with a paint which can be stripped mechanically from its support and removed complete with the decontamination on its surface. Such paints are readily available, but somewhat expensive and difficult to apply. You cannot stop a radioactive material radiating until the end of its natural decay period, which may be thousands of years. If you get such material on a painted surface, the only way to prevent that surface being dangerous is to remove the region affected by scraping, monitor it, scrape again and so on, and keep the waste material. We are studying what to do with the waste; one suggestion is to send it to the moon by rocket !

"On the question of construction costs I cannot say very much. It is obviously going to be a fairly expensive matter to provide a scientist working on some aspect of atomic energy with the accommodation which he needs. Expensive materials such as stainless steel and lead are often needed, together with accurate workmanship and close attention to detail in design and construction, and a very high-grade surface finish. Expensive air cleaning and conditioning equipment is a usual requirement, and the effluent water control system can be very expensive. The extra working space demanded by the need to control cross-contamination is often quite large. For instance, instead of having several chemists working in one laboratory on different problems a single chemist may need several laboratories for different phases of one problem. The proportion of the building taken up by services—air conditioning equipment, trunking, heavy shielding walls and changing rooms—is likely to be high, and in the case of some radiochemical buildings intended to handle large quantities of radioactive material can easily amount to more than half the building.

"In conclusion I would emphasise that I foresee no major change in the

design of buildings or the layout and siting of new towns likely to follow from the use of energy derived from nuclear reactions. In the detailed construction of buildings for housing radioactive materials, however, there are a large number of factors to which special consideration must be given, and much investigation remains to be done to achieve an ideal solution of all the problems."

Replying to questions, he added that Harwell did not at the moment supply hot water from its own works, but schemes were being worked out. The construction of efficient heating systems might be expected within the next five or ten years. It would be difficult to find in this country the opportunity to install a district heating scheme needing 20 megawatts, which was a reasonably economic size for a reactor, but it might be possible to use rejected heat from a power-producing system.

IN PARLIAMENT

M.P.'s Personal Statement

THE criticism which the Minister of Health levelled against Mr. Marples, Conservative M.P. for Wallasey, in the housing debate on November 6, was followed on November 13 by a personal statement from **Mr. Marples** to the House of Commons.

He recalled that the Minister had said that after he (Mr. Marples) left the firm of Kirk & Kirk Ltd., his colleagues built the B.S.C. house satisfactorily in competition with traditional building, whereas Mr. Marples was building power stations. The Managing Director of Kirk & Kirk Ltd. informed him (Mr. Marples) that since he resigned from the firm on January 30, 1950, they had not built a single B.S.C. house. Nor did they build any before. The statement of the Minister was inaccurate.

The Minister had also referred to guarantees by the Ministry to Kirk & Kirk Ltd. about orders for B.S.C. houses, and said it was not possible for the Ministry of Health finally to have given any such guarantee. On May 30, 1946, the Ministry of Health wrote to Kirk & Kirk Ltd.: "You would then undertake to build up to 1,200 houses. If so, we would be ready to induce local authorities to enter into such contracts with you up to this programme."

Because the Ministry wanted Kirk & Kirk Ltd. to build B.S.C. houses (Mr. Marples went on) and in view of the Ministry's written assurance, as well as other verbal assurances, Kirk & Kirk Ltd. built a special factory costing £80,000 in which to prefabricate the house. But owing to a change in Government policy, it proved impossible to get enough orders for the B.S.C. house to put the factory into production. The Ministry's assurances were not implemented.

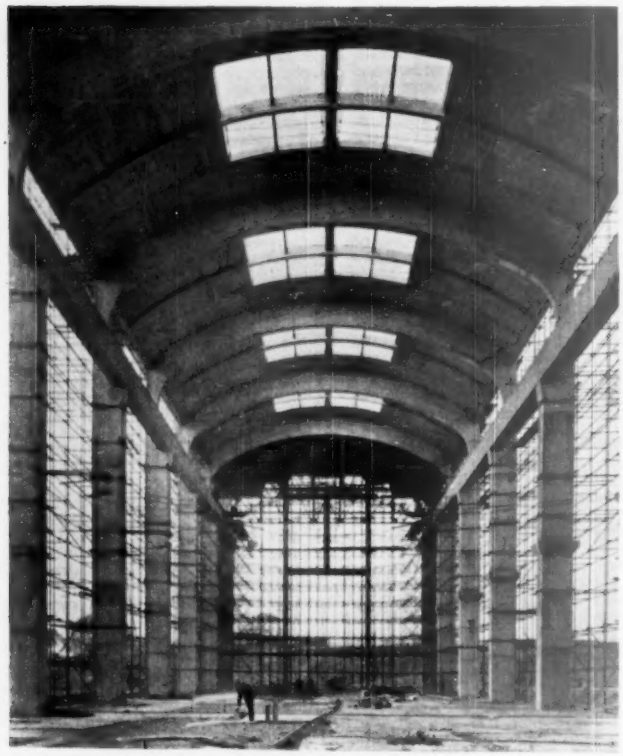
Without sufficient orders the Company was forced to abandon the project and to sell the factory and machinery. There was no alternative. Money was lost on the sale of the special plant and machinery, with no compensation received from the Ministry. This inevitable decision was not my own personal decision but a collective and unanimous decision of the board of directors of the company. Even if the Minister's attack were well founded it should have been directed not against myself personally but against the board of directors as a whole, which at that time consisted of three members. The two ordinary directors with equal voting rights were a Mr. Drewery and myself. The chairman, with a casting vote under the articles of association, was the Socialist member for Leeds, South-East (Major Milner), chairman of the Committee of Ways and Means.

Mr. Bevan, Minister of Health, said that the substance of his charge against Mr. Marples was left untouched. It was that he was engaged in negotiation with the Ministry of Health for the construction of a house that involved an additional subsidy when, in fact, he had abandoned any attempt to construct that house and was now engaged in civil engineering.

The Speaker intervened, pointing out that a personal explanation could be briefly answered, but could not be the occasion of a substantive debate.

Mr. Bevan: Then I suggest that as it was a long statement, involving relationships within companies, the hon. member should take an opportunity of raising the matter in a debate, and I will reply.

(From Our Parliamentary Correspondent)



The interior of the Turbine House at the new Skelton Grange Power Station for the Yorkshire Division of the B.E.A., the framework and roof of which is nearing completion. The main structure comprises a series of r.c. frames supporting a shell concrete roof with a span of 79 feet. The architectural design of the building elevations for the power station is in the hands of R. A. H. Livett, O.B.E., A.R.I.B.A., Leeds City Architect. The whole project is being engineered by the British Electricity Authority, with Messrs. Merz and McLellan as Consultants, who are assisted by Sir Alexander Gibb & Partners on the civil engineering side of the work. The erection of the Turbine House is being carried out by Holst and Company Limited to their own designs, which were made in collaboration with Chisarc and Shell 'D' Limited, for whom H. G. Cousins, B.Sc., M.I.C.E., acted as Consulting Engineer. The General Contractors are Marples Ridgway and Partners.

BUILDING TECHNICIANS DIARY, 1951

Orders for this invaluable pocket book, which has been thoroughly revised and brought up to date, should now be sent to the Association of Building Technicians, 5 Ashley Place, London, S.W.1. Price 5s.

NEWS of the BUILDING INDUSTRY

JUST as the Building News Section was getting under way, publication ceased as a result of the printers dispute, which is now settled. The interval has not been without value as breathing space and thinking space.

*

From information and correspondence received to date, it appears that the feature has been missed—this is gratifying. But not satisfying. The absence of suggestions or criticism surely cannot mean that the section is perfect—or can it? We know from inquiries received that certain features are well received. But, since the purpose of News of the Industry is to increase co-operation within the Industry, a first step is for members of the Industry to co-operate with us by making suggestions for the sort of material they wish to see published.

*

This page of the section is open for correspondence, topical articles and controversy from would-be contributors.

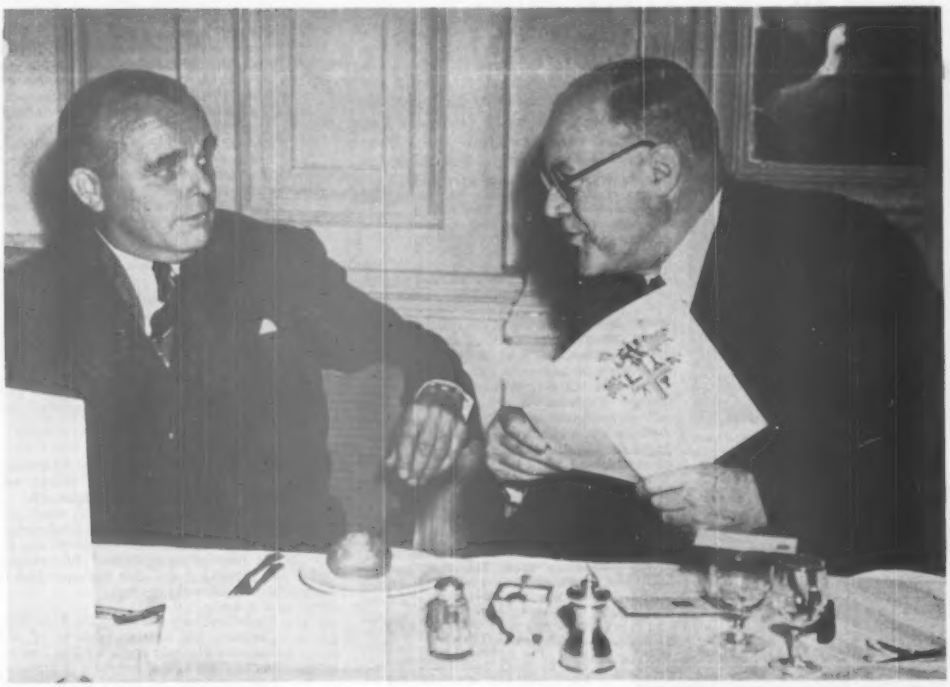
*

The number of inquiries received about items illustrated in "Mosaics" justifies the continuation of this feature. More information would be welcome from architects who can recommend, from their personal experience, items which they have specified in their own work. All illustrations and text in Mosaics are printed to standard size, which will tear out and paste on standard index cards for easy filing.

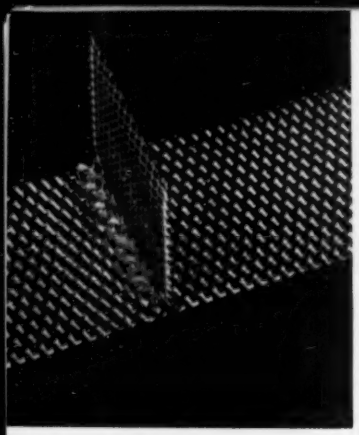
*

The new year will present an opportunity of adjusting the format and contents of the Building News Section. Readers' comments will therefore be of the utmost value, not only to us but to other readers. The sort of questions to which we would like readers' reactions are

1. Is the Industry interested in Accident Prevention?
2. Is low cost a justification for poor design?
3. Is enough being done to explain the reasons (if there are any) for modern design techniques to building operatives who at present often regard them as just fancy stuff—and alarmingly unorthodox?
4. Is news of foreign developments of practical value, in view of current restrictions?



Mr. Richard Costain, President of the London Master Builders' Association, proposed the health of the Lord Mayor of London at a luncheon given for the Lord Mayor by the L.M.B.A. in October. In this picture, taken at the luncheon, the Minister of Works might appear to be selling something to the President. The President, however, does not look as if he is willing to buy.

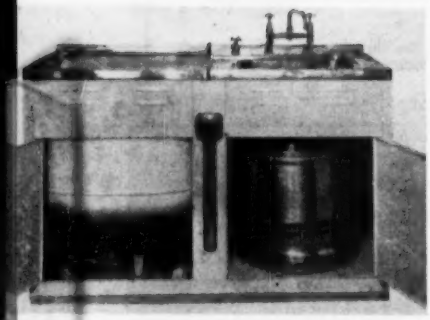


STRUCTURE—JOINTING A 5/1

Investigations into cold pressure welding have resulted in the development of a process which can now be applied to joints which are difficult to achieve by any of the usual methods.

The illustration shows an example of a joint made in expanded aluminium which suggest a simple method of building up screenwork for numerous purposes.

Cold pressure welding is also used for jointing different thicknesses of the same material and satisfactory welds, it is claimed, can also be made between certain different metals, e.g. copper and aluminium and with thicknesses up to a ratio of 20 to 1.

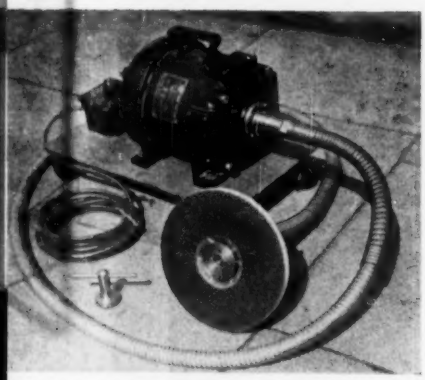


FITTINGS—SINKS C 2/3

This automatic sink unit consists of a full size 8 lbs. capacity combined clothes and dishwashing machine built into a sink unit 54in. x 26in. x 36in. high with a 1½ in. splashback.

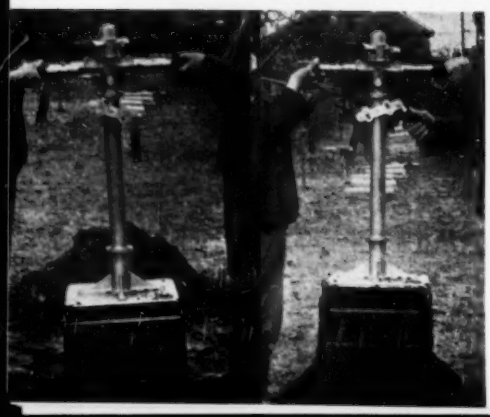
The single sink bowl and draining board are of stainless steel in a cabinet of aluminium, stove enamelled cream or white. The photograph shows the mechanism housed beneath the drainer and the washing machine in its storage position beneath the sink.

A prototype is in existence. First deliveries are expected towards the end of this year.



PLANT—TOOLS E 3/3

A light portable disc-sanding machine with flexible drive suitable for continuous work on the site. This machine is recommended by the makers for removing shuttering marks from concrete, brushing concrete to expose aggregate, cutting out cement pointing and trimming tiles. The machine is available for petrol or electric drive.



PLANT—TOOLS E 3/4

Prototype of a square holed shovel made of light alloy in six sizes. The 4 in., 6 in. and 8 in. models are for one man use; 12 in., 15 in. and 18 in. for two men. A complementary tool is a patent pick (ram operated). The inventor claims that by using both tools, holes from 4 in. to 18 in. square for fencing, scaffolding, etc., can be dug quickly to 6 ft. depth with a saving of 50 per cent. to 75 per cent. concrete for bedding in posts.

MOSAICS

The names and addresses of manufacturers of any item illustrated in MOSAICS, together with more detailed information relating to their products—including price and availability—will be forwarded to readers on request.

Letters should quote the serial number and be addressed to:

The Associate Editor,
The Architect and Building News,
Dorset House,
Stamford Street, S.E.1.

Please mark the envelope MOSAICS

★ INFORMATION AND CATALOGUES RECEIVED ★

* *The Rawlplug Company Limited have issued a new catalogue which lists all the diameters, lengths and prices of Rawlplugs and Rawlbolts together with detailed information relating to hammers, drills and other tools. A section is devoted to a brief description of the uses of Rawloops, Rawlties, and Rawlhangers — three comparatively recent additions to the Rawlplug range designed to simplify and speed the erection and dismantling of concrete shuttering.*

Charts to show at a glance the right tool and plug for the job have been specially designed, one for architects and one for engineers. These charts are illustrated in the catalogue and can be obtained free on application to The Rawlplug Company Ltd., Cromwell Road, London, S.W.7.

* *Morris of Glasgow's brochure for September—we apologise for being late with this comment—contains excellent photographs of their Cumbrae furniture. Captions give sizes and—most important—prices. This firm undoubtedly gives value for money. The good design of the furniture is echoed in the pleasing production of the brochure which is—unlike much commercial literature—easy on the eye.*

* *A new electric cable factory for Messrs. W. T. Henley's Telegraph Works was opened on Monday, October 16, at Birtley, Co. Durham. To mark the occasion the company have produced an illustrated brochure. The architects for the factory were Michael Waterhouse, PP.R.I.B.A., and Cedric Ripley, F.R.I.B.A.*

* *A new brochure issued by the Ram River Company Ltd. carries pictures of the Mulberry Harbour and the Royal Festival Hall. This sort of brochure is probably good publicity but would in our opinion make better reading for professional men if the space devoted to letters of appreciation carried technical information. But perhaps the publicity chaps know best !*

GOOD, BAD OR INDIFFERENT ?

By A. FOREMAN

No. 11

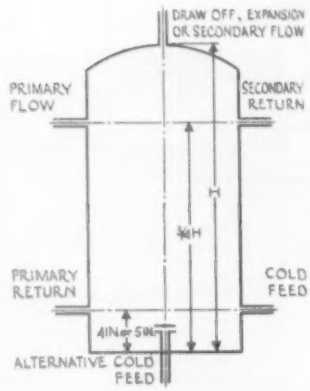
Hot Water Installation

IN a previous article I called attention especially to sizes and shapes of hot water storage containers, so this week I want to stress some other points that aid the efficiency of a hot water system. The flow of hot water at fittings wants to be rapid and with the minimum flow of cold water before the hot arrives. The rate of flow is dependent on pipe sizes and on the bore of the taps. There are many taps on the market having outlets which restrict the flow to considerably less than the associated pipe size; it is wise, therefore, to see that all screwdown taps are of the full bore types and conforming to B.S.1010 which, when so marked, are accepted by supply companies. The normal tap sizes should be ½ in. for basins, ½ in. or ¾ in. for sinks, preferably the latter, and ¾ in. for baths; even larger sizes have advantages for baths as the water in them tends to cool rapidly and it is annoying to have to wait while a small tap provides the necessary amount of water.

The amount of cold water which comes in advance of the hot is limited by reducing to a minimum the length of "dead-leg" pipes; in no case should these be longer than 25 ft. from the pipe or tank containing the actual hot water; longer lengths waste so much water, as until the hot water comes the cold water is allowed to run away, and this can easily amount to many gallons in a day; in addition to the waste of water, there is also the waste of fuel used to heat the water left to cool off when standing in the "dead-leg" pipes.

Primary flow and return pipes ought to be at least 1 in. bore, and should be based on the screwed connection sizes on the hot water storage container which vary from 1 in. to 1½ in. for the larger sizes. Draw-off pipes should be 3 in. bore unless there is only one ½ in. tap on the line. Cold feed pipes, which should always be controlled with a screwdown stopcock at the point where they leave the cold storage cistern, should run directly to the hot water storage tank and should not be less than ¾ in. bore. Never connect a cold feed pipe directly to the boiler nor into the primary return pipe as a sudden inrush of cold water may damage the boiler.

The efficient operation of the system largely depends on having the connections to the storage container in the right places, and all the British Standards for hot water tanks and cylinders, both direct (B.S. 417 and 699) and indirect (B.S. 1565 and 1566) fix proper positions for inlets and outlets which are based on the primary flow being three-quarters of the way up the tank or cylinder, the primary return 4 in. above the bottom for small sizes and 5 in. for large sizes, the cold feed at the same height as the primary return, the main draw off or secondary flow in the top and the secondary return, if any, opposite the primary flow. If for any reason the cold feed has to enter vertically from the base, a short Tee spreader



should be provided to prevent the pressure of cold water forcing its way into the hottest water at the top of the container, and also the pipe should be carried the minimum distance into the container. Fig. 1 makes clear where these connections should be and is based on the British Standards positions.

An important point in making installations which often seems to get forgotten, is the provision of adequate falls on all horizontal pipe runs, whether flow or return; the fall should be not less than at the rate of 1 in. in 20 ft. and rather more is preferable. To achieve and also to maintain these falls in service, care must be taken not to space pipe fixings too far apart; the distances vary greatly with the type of pipe material, but with most pipes 6 ft. is the maximum. See also that pipe brackets are securely fixed and that pipes are at least ¾ in. away from walls so that they may be handled and repainted without damage to plaster; in fixing this distance do not forget to add for the thickness of insulation which is to be used.

CONCRETE MIXING & PLACING—I

By ROLT HAMMOND, A.C.G.I., A.M.I.C.E.

It is accepted that weigh batching is a more reliable method of obtaining good concrete than by volume batching. Some operators are loath to adopt weigh batching, but even where the system is in use much of its success depends on the type of mixer and the care taken to maintain plant in good, clean condition. In these articles the author discusses various types of mixing and placing plant.

THERE are many different types of mechanical concrete mixer, but perhaps the most common is the medium-size mixer with a non-tilting drum, of which civil engineering and building contractors have large numbers in operation.

Improvements to mixers in recent years have taken the form of skip shaker gear, batch timing devices, improved water measuring methods, or the mounting of mixers on trailers with pneumatic tyres for high-speed towing from one site to another. Mixers are generally built in sizes according to the batch output required, often being described by double figures which mean the amount of materials placed in the drum in relation to the amount of concrete discharged; thus a 21|14 mixer will produce about 14 cu. ft. of concrete from 21 cu. ft. of materials after a mixing time of about two minutes.

The main objectives of a concrete mixing plant are to obtain uniform concrete of good quality at an economical speed, and with maximum freedom from mechanical troubles. Quality and uniformity depend upon many factors, which include the method of proportioning the materials, measurement and control of water used in the mix, design of the mixing drum, and the efficiency of operation.

Accurate proportioning of the constituents is very important, and experience has proved that volume batching of cement is liable to serious error, because Portland cement can weigh from 75 to 95 lb. per cu. ft., according to the method used for filling the measure. Weigh batching of cement is the most satisfactory method; this may be done by using 112 lb. bags as supplied by the cement manufacturers, or by employing weighing machines on site. Both methods are reasonably accurate.

Nevertheless, serious errors can occur with weighing machines. Thus, wear of the mechanical parts may result in loose bearings and similar items, cement may clog in the hopper, the scale of the weighing machine may be indistinctly marked so that the operator will guess the weight. It has been found that a weighing machine of the beam and jockey weight type should have an accuracy of plus or minus 5 lb. Calibrations of this design of machine have shown that the accuracy can be within plus or minus 1½ per cent., which is quite good enough for all practical purposes.

Valuable research has been carried out by Dr. L. J. Murdock on concrete mixing plant ("The Efficiency of Concrete Mixing Plant," by L. J. Murdock, PH.D., M.SC.(ENG.), A.M.I.C.E., *Journal Inst. C.E.*, November, 1948) and he has found that there is a serious loss of efficiency if the speed of the mixer falls from 17 to 15 revolutions per minute, especially for a mechanically fed mixer. At speeds above 17 r.p.m. there is little advantage as long as the mixer is fed manually, because

ACCIDENTS IN BUILDING

This drawing was inspired by a photograph we received to demonstrate how easily a certain sheet material could be carried by one man up a ladder. The photograph was taken on a calm day. Clearly our penguin, however, has got a touch of wind, not to mention a dud ladder. So any minute now the bloke at the bottom will be able to put all that in his pipe and smoke it. They didn't know the rule.

DO YOU ?

Extract from the Building (Safety, Health and Welfare) Regulations No. 29-7a.

(7) No Ladder shall be used which has—

(a) a missing or defective rung; or

(b) any rung which depends for its support solely on nails, spikes, or other similar fixing.

(8) No wooden ladder shall be used unless it is constructed with—

(a) uprights of adequate strength made of straight-grained wood free from defects and having the grain of the wood running lengthwise; and

(b) rungs made of straight-grained wood free from defects and mortised or securely notched into the uprights; and

(c) reinforcing metal ties if the tenons are not secured by wedges.

the increased efficiency is not sufficient to offset a further increase in labour to load the hopper.

In considering mechanically fed mixers, Dr. Murdock has found that there is some decrease in cost with these if the speed is increased to 20 r.p.m., but that in order to maintain this speed without overtaxing the engine on the mixer, it would be necessary to increase its power. He gives the following table showing the estimated costs per batch of concrete for manually fed and mechanically fed mixers operating at various speeds:

Manual Operation

Speed of mixer, r.p.m.	15	17	20
Batches per hour ..	6·2	10·0	11·5
Cost per batch: pence	21·0	16·1	16·6

Mechanical Handling

Overall mixing cycle: minutes	10·0	6·3	5·5
Batches per hour ..	6·0	9·5	10·9
Cost per batch: pence	37·3	23·1	21·5

Generally speaking, it would appear that with small mixers it is a great advantage to employ a weighing machine in conjunction with a loading hopper, thereby avoiding the necessity of a separate weigh bucket. A vertical water-measuring tank is reasonably accurate if properly calibrated, but the scale must be easy to read.

The concrete mixer with placing bucket boom attachment, known as a paver, is a large portable combined mixing and placing machine which may weigh up to 30 tons. The complete unit is often mounted on track-laying suspension for travelling over rough ground, and it is a very useful machine for runway construction and similar work. An interesting and practical American development is a mixer with two drums, or one drum divided into two compartments; mixing takes place partly in one drum and is completed in the second drum, from which it is discharged. It has been claimed that this type of mixer can show an increase of from 50 to 75 per cent. in output as compared with other batch mixers of similar weight and cost.

The open trough, the pan mill, the counter current pan mill and other designs have come about as a result of the need for well-mixed concrete in the manufacture of precast concrete blocks and of high quality concrete suitable for prestressed concrete construction. For many years much research has been devoted to the evolution of a mixer which would discharge a continuous flow of precisely mixed concrete. This has resulted in the development of a worm-screw type of machine which has been very successful, and which was widely used in World War II for doing urgent works. Practical men have pronounced that it has given very satisfactory results.

★ INTEREST ★

A PROGRAMME OF HOUSING which provides for yearly increases would be helpful because it would encourage the manufacturers to produce increasing supplies of materials. This, in turn, would lead to increased output on the site and, therefore, to the erection of more buildings, including houses. So long as supplies of materials continue to be short and deliveries to be erratic, the operatives cannot give of their best and the attempts of employers to organise on sound lines and to introduce bonus schemes will be largely frustrated. This is the contention of Mr. Robert O. Lloyd, President of the N.F.B.T.E., in a speech made to the Birmingham Association of Building Trades Employers on Monday November 13.

*

THE *FINANCIAL TIMES* of November 7 in an article on housing refers to proposals to lower, temporarily, the standards of housing. Mr. Bevan is stated to have "treated this proposal with his customary levity." The article concludes: "Can Mr. Bevan really believe that the man without a house would prefer to hear how well the planners are maintaining their standards rather than obtain a house of his own even if it were something less than the best."

It would be interesting to have some indication of the lowest standard to which the proposers of dropping standards would subscribe. —Ed.

*

BANKRUPTCY DURING A BUILDING CONTRACT was the subject of a paper read to the General Meeting of Quantity Surveyors at the Royal Institution of Chartered Surveyors last week by Mr. Sydney Redfern, solicitor.

The procedure to be adopted in the event of the bankruptcy or insolvency of

i. The Building Employer
ii. The Contractor
iii. The Nominated Sub-Contractor
iv. The Nominated Suppliers

were the lecturer's main points.

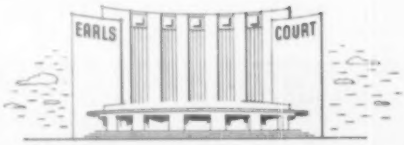
In case i above the contractor is covered by Clause 20 of the Contract. The clause suggests that the contractor will have lien on all unfixed materials on the site. Mr. Redfern did not think a prudent contractor should attach great value to his lien.

Since sub-contractors and suppliers have no claim against the employer or his trustee in bankruptcy the main contractor may have to pay them in full while he himself receives only a small dividend on the amounts paid out.

In the contingency of the contractor's bankruptcy, to some extent covered by Clause 19 of the R.I.B.A. contract, questions sometimes arise, Mr. Redfern said, between the owner and the contractors' trustee in bankruptcy as to ownership of materials "on or adjacent to the site." The lecturer explained that if the cost of such materials has been included in a Certificate then between contractor and employer ownership passes to the employer: but as between employer and trustee the position might not be so clear cut. For instance, it had been held by the Divisional Court that materials actually on the site belong to the employer, but that materials which (though paid for and allocated) are still in the contractor's yard are

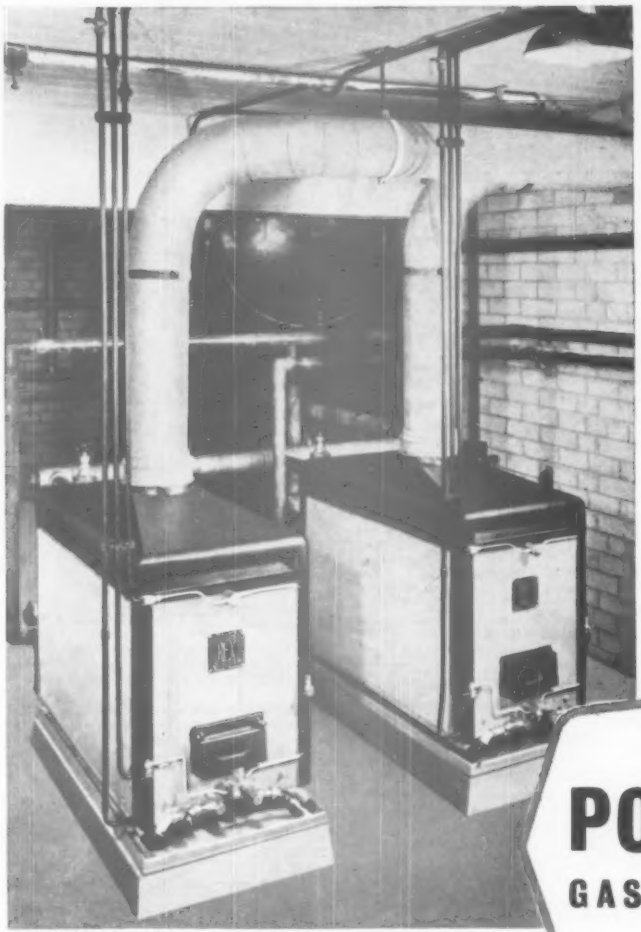
CLEANER FOOD DISPLAY

One of thirty specially designed display cases made from Formica by Dunstable Showcases Ltd. These cases have a welded steel framework.



Recommendation for specification

"MADE BY DE LA RUE"



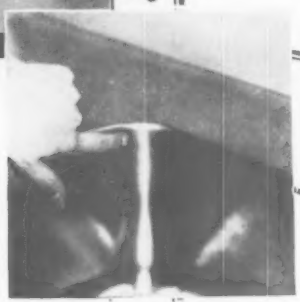
Installation by resident engineers.

For the supply of domestic hot water to the restaurants at Earls Court, POTTERTON Gas Fired Boilers have been installed. The main kitchens are served by two D Series Rex Boilers from which over 3,000 gallons of hot water may be drawn per day. Two other D Series Rex Boilers provide hot water for the Brasserie Restaurant.

Wherever there is a need for a reliable automatic hot water supply, POTTERTON Gas Fired Boilers will fill it efficiently and economically. The range includes models for domestic and commercial purposes, for hot water supply and central heating. Please write for descriptive literature.

POTTERTON
GAS FIRED BOILERS

THOMAS DE LA RUE & CO. LTD. (Potterton Gas Division), 84/86 Regent Street, London, W.1. REGent 2901
Northern Area: 4 Albert Square, Manchester 2. Blackfriars 3258
Midlands Area: Portobello Works, Warwick, Warwick 616



PLAND STAINLESS STEEL SINKS

give an air of distinction and brightness to any well-designed kitchen

Pleasant in appearance, "PLAND" sink units have all the qualities that make for hygiene, labour-saving and durability. Made of special stainless steel they are indestructible due to the through-and-through uniformity of the material and to its strength and rigidity.

Satin polished surface
of stainless steel provides no hiding place for germs or debris. Cannot crack or craze.

Stainless steel overflow
easily removed in one piece—cleaning a simple matter.

Effective sound deadening
cuts out objectionable clatter created during washing-up.

Cleaning the sink
Just a wipe over with soap and hot water leaves it bright and hygienic.

Less breakages
of crockery due to resilience of metal used.

● Walls of sink merge into drainer in one continuous piece of shining metal.

In association with the Taylor Rustless Fittings Co. Ltd., we can supply Architectural Fittings, Door Furniture, Butchers' Fittings, Holloware for Hospitals, Food and Chemical Factories, Chemical Plant—Tanks, Coils and Ducting.

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S35

This 50' 0" x 8' 0" sheet of ¼" polished plate glass has arrived safely at the South Bank Site where it will be installed in the Power and Production Pavilion. The picture shows the 'sucker' which has been brought from the works to lift the window into position.

THE WORLD'S BIGGEST WINDOW

the property of the trustees in bankruptcy. Mr. Redfern therefore recommended architects "under the guidance of their quantity surveyors to hesitate before issuing certificates for material not actually on the site.

*

ASSESSMENTS OF THE PRESENT VALUE OF THE £1 vary. The *Operation Builder*, in a leader which countenances "extreme caution in accepting Government pronouncements about the cost of living," calculates the present purchasing power as 7s. compared with 1939.

*

THE MINISTER OF WORKS will open a "Modern Building Exhibition" designed to show the application of research to some present-day building problems, at the Hammersmith School of Building, Lime Grove, Shepherd's Bush, at 11 a.m., on Tuesday, December 5.

The Exhibition organised by the Ministry of Works in co-operation with the School, will be open until Wednesday, December 13. It will be on view to the public from 1.30 p.m. to 8.30 p.m. on the opening day, and on following days from 10.30 a.m. to 8.30 p.m., including Saturday, December 9. Admission is free.

Lectures will be held on two evenings, at 7 p.m., as follows: December 6, Subject—"Powered Hand Tools." December 12, "Economy in Traditional House Building."

*

THE MINISTRY OF WORKS announce that as from November 13 revised price lists are being introduced for certain asbestos cement products manufactured by Turners Asbestos Cement Co. Ltd., and Tunnel Asbestos Cement Co. Ltd.

These changes represent an overall increase of about 6 per cent. in the prices of all asbestos cement building materials sold by these companies, but this overall result is being secured by applying varying increases to the different products.

COUNCIL PROCEEDINGS SUMMARY

This column summarizes news of the building industry contained in the reports of Council Proceedings received in this office. Dates of the council meetings are given under each heading.

LONDON COUNTY COUNCIL

7-11-50

The draft of the L.C.C. (Crystal Palace) Bill, which would transfer entire control of Crystal Palace and Park from the Trustees to the L.C.C. will be deposited in Parliament on November 27.

*

Garden sheds and garages are to be provided, on request, to tenants on cottage estates at weekly charges of 1s. per shed and 3s. per garage.

*

Plans for the layout of the whole riverside space between County Hall and Waterloo Bridge are to be prepared as soon as the design of the adjacent new Government offices is decided. The space will be laid out as a Memorial Garden.

*

Completion of building forty-nine old people's houses at Lansbury, Poplar, is scheduled for mid 1951. The welfare committee have recomended approval of an estimate of £5,720 for equipment.

*

In July 1948 the Council gave the Government an undertaking to preserve Mount Clare in Rochampton Lane. A motion proposed by the Hon. John Hare in October gave notice that "the Council . . . records its dissatisfaction with the failure of the Housing Committee to deal with outbreaks of dry rot at Mount Clare, thereby substantially increasing the eventual cost of restoration." The motion was debated at the Council meeting.

M. o. W. LECTURES

November 21

British Standards and Codes of Practice for Building.
7.0 p.m. at Fawcett Road Girls' School, SOUTHSEA.

*

Essentials of Good Concreting.
7.30 p.m. at The Physics Lecture Theatre, Royal Fort, BRISTOL.

*

Economy in Traditional House Building.
7.15 p.m. at the Central Library, BURNLEY.

November 22

Essentials of Good Concreting.
7.30 p.m. at the Town Hall, DEVIZES.

*

Good Practice in Domestic Drainage.
7.15 p.m. at the Public Library, NORTHAMPTON.

Mr. A. E. Mayhew, A.R.I.B.A., M.I.STRUCT.E., District Surveyor of the City of London, has asked to retire from the service forthwith for personal reasons.

*

The estimate of Messrs. Gee, Walker & Slater Ltd., of £90,961, for a county primary school for 440 children at Poplar, is to be accepted. The comparable estimate of the private architect was £91,930.

*

Repairs, following fire, at Plough Road School, Battersea, are estimated at £12,273.

*

£275,000 is the rough estimate for the recommended compulsory purchase of some 19 acres adjoining the Live Architecture Exhibition site at Lansbury, Poplar. It is proposed that the area be redeveloped to provide housing, schools, shops, etc.

*

Land is required by the French Government for proposed extensions to the Institut Francais in Cromwell Road. Owing to difficulty experienced in obtaining this land the Council has been asked to assist by the exercise of its powers of compulsory purchase. The consent of the Minister of Town and Country Planning to the disposal of the freehold interest will be necessary in due course.

LEEDS

1-11-50

The Ministry of Health allocation of houses to the Council for 1951 is 1,200.

*

The Finance and Parliamentary Committee are to be asked to agree to the use, by the Housing Committee, of the R.I.B.A. (adapted) contract instead of the Corporation form of contract.

*

The City Architect having reported, it has been resolved that additional expenditure of £357,000 over contract price for 2,000 L.C. houses and £2,500 for 130 houses be authorised

HAMMERSMITH

15-11-50

The London Corinthian Sailing Club premises at Lower Mall, Hammersmith, has agreed to sell the freehold of the club to the Town Council. A new club house will be built at the Council's expense. This will allow a 20 ft. strip on the river front to be used for extension and completion of the promenade.

*

Applications for accommodation in the New Towns, for the five weeks ended October 21 totalled 441.

WALSALL

13-11-50

Plans for a new County Secondary School prepared by H. F. B. Close, L.R.I.B.A., and approved, in principal, are to be submitted to the Minister of Education. Subject to Ministry approval the erection of the first instalment of 340 places would proceed at once at an estimated cost of £121,650.

*

The Borough Surveyor has been authorised to invite tenders for adaptations to the Central Fire Station.

The estimated cost of a new drill tower at the central fire station is £3,000.

Fluorescent cornice lighting has been installed in the library at the John Innes Horticultura Institute. Twenty-four 5 ft. 80 watt tubes and four 3 ft. 30 watt tubes give an average illumination level of 20/25 lumens per square foot on the horizontal plane over the 40 ft. x 25 ft. room. On the vertical plane at the level of the lowest bookshelves illumination is 8/10 lumens per square foot. The architect was Hugh P. Crallan, A.R.I.B.A., with whom B.T.H. lighting engineers designed the installation. Contractors were Messrs. Waring, Withers and Chadwick Ltd., London.

OFFICE BOOKSHELF

Reinforced Concrete

Explanatory Handbook on the B.S. Code of Practice for Reinforced Concrete by W. L. Scott, W. H. Glanville and F. G. Thomas (Concrete Publications Ltd. 9s.) is a very useful and interesting publication which prints the clauses of the B.S. Code of Practice, C.P. 114: 1948, one by one followed by detailed explanations by the authors. The explanations are simple and straightforward so that students with even a limited knowledge of the subject should have no difficulty in following them. It is a pity that the authors did not include, perhaps as an appendix, the essential matter from C.P.3, Chapter V, "Loading," so that the user might have all the basic information in one volume. The general arrangement and the presentation of the book is good and all those whose work involves the use of reinforced concrete should find it very helpful.

A Course of Reinforced Concrete Design by Thomas J. Bray (Chapman and Hall Ltd. 30s.) is a second edition which has had a special appendix added to take account of C.P. 114 referred to above. It seems a pity that the author considered that "it is inadvisable" to take full account of this code in the text as it seems that it is likely to be accepted generally and therefore students should be made fully aware of it. The volume is based on a lecture course of 39 lectures and covers a wide field. The matter is clearly presented and the text and diagrams easy to follow.

Asphalte

Mastic Asphalte Work by F. E. Drury and A. W. Gittins (Crosby Lockwood & Son Ltd. 10s. 6d.) is probably the first really comprehensive book written on this subject. The book is clear and concise and covers the whole subject admirably with a good text and excellent illustrations. This book should be extremely helpful not only to those in the asphalte industry but also to architects, engineers and builders whose knowledge of this rather specialized material is often not very great. The first two chapetrs discuss the materials used and the characteristics and use of mastic asphalte. Five chapters give very detailed information of applications for various purposes. Another chapter discusses testing and specification while the last three chapters concern, in the main, the asphalte industry and discuss measurement, site organization and calculations. Both theory and practice are equally well handled. By the way, is it asphalte or asphalt ?

Acoustics

Acoustical Designing in Architecture by Knudson and Harris (John Wiley, New York, Chapman & Hall, London. $7.50) is a very exhaustive treatise on the subject. While it appears to be intended as guidance to the architect it is probably more suited to those making a special study of the science. Three-quarters of the book is devoted to general principles and procedure and the remainder to specific applications to various types of building; the latter contains much advice which architects should find very helpful.

Dictionary

From U.S.A. comes a specialized type of dictionary of the terms in the building industry namely *Architectural and Building Trades Dictionary* by Burke, Dalzell and Townsend (American Technical Society, Chicago. Technical Press Ltd., London. 45s.). The book has 350 pages of text copiously illustrated. It is well prepared and no doubt very useful to our American friends but, alas, the English and American technical languages are often at variance so that reference books of this type have only a limited value in this country.

Colours

From a well-known paint manufacturing company comes a new edition of *Historical Colours* (Thos. Parsons & Sons Ltd. £1 1s.) which sets out interpretations, for use as flat painting materials, of a wide range of colours used for varying purposes throughout the ages. Brief notes accompany the colour slips. The volume is very nicely produced and is very pleasant as an advertising medium. It seems, however, that this is just one more range of colours or at least another set of names for possibly the same colours from which painting materials may be chosen. A comprehensive set of colours based on some range, such as the Munsel scheme, with agreed numbers to which the products of all firms would conform would be more valuable to the building trade.

Plumbing

Quite a number of books have appeared from time to time on the plumber's craft but only a few are as well presented as *Plumbing* by H. Pennington (English Universities Press Ltd. 6s. 6d.). The book is designed to cover the needs of a two-year course in Secondary Technical Schools. The scope ranges over the basic materials and the tools used to a wide series of applications in roof work, sanitation and water supply. A brief chapter is devoted to the essential hydrostatics needed by the student. The drawings are clear and adequate although it seems a little undesirable to show such an unhygienic product as the globe bath tap and references to the use of storage cylinders installed horizontally seems to be unwise; it is unfortunate that authors of text-books such as this do not keep in line with the recommendations of the B.S. Codes of Practice nor draw the attention of their students to sound guidance contained in them.

Junior Technical Education

Yet another volume in the Secondary Technical Building Series has appeared as *Carpentry and Joinery* by M. T. Telling (Pitman. 8s. 6d.). It is a good addition to the series and contains a great deal of well presented information and many clear drawings. There seems, however, to be a degree of muddle in the assembly of the material and the general approach to the subject. For example, the excellent information about tools is considered after the tools have been used to make various joints, and, indeed, whole fittings. Similarly, a picture of door handles appears in one place and then more about handles in another section later in the book. The information on materials is rather too sketchy and not very orderly. The preservation paragraphs mention creosote but none of the very useful alternatives; while the short references to paints, stains and polishes would be better left to a volume on these subjects. Also one wonders why windows form part of the section on "workshop practice" but doors are "joinery." Good as the book may be, one is left with the feeling that the treatment and the information are rather out-of-date. This feeling is emphasised by the meagre two pages entitled "Modern materials and construction" telling the student about the products with which he will in fact have to work. It is very doubtful if flush door makers would agree that the framing of such doors are of "comparatively inferior wood." The reference to "joinery fitments" should be expanded or omitted as should the section on "lettering measuring, and drawings."

As an example of what a technical textbook should not be, it is worth examining *Practical Bricklaying* by A. Hammond, revised by William Frost (The Technical Press Ltd. 6s.). The information is poor, the arrangement bad and the printing indifferent; it is very badly illustrated although the author of the revision has added many diagrams from which he suggests "the bricklayer can see the proper constructions at a glance," whereas in fact they are almost incomprehensible without a very adequate knowledge of what they are intended to represent. It is strange that several pages discuss pointing but the associated diagram is fifty pages away on the back page. Why does a book on bricklaying discuss roof slating ? Incidentally Section 5 starts with slaters' work and continues with cavity construction ! The oddest statement in the book is that bricks are "nine to nine and a quarter inches long and never less", the author taught in London.

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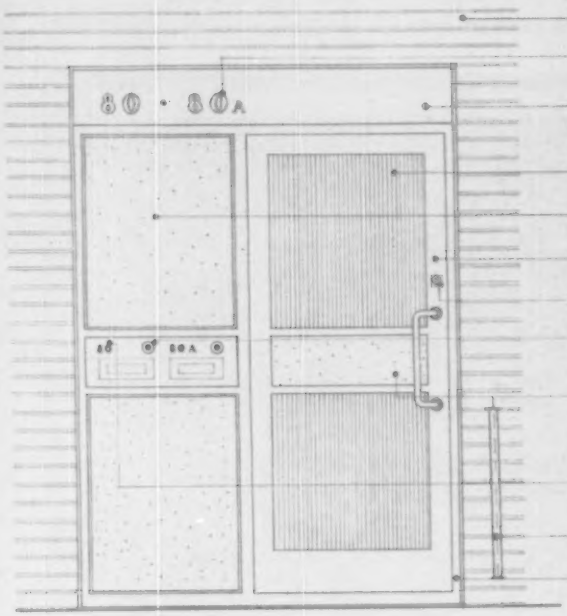
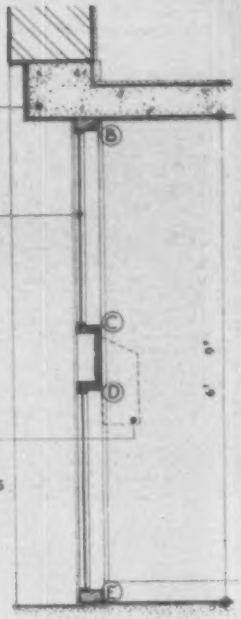
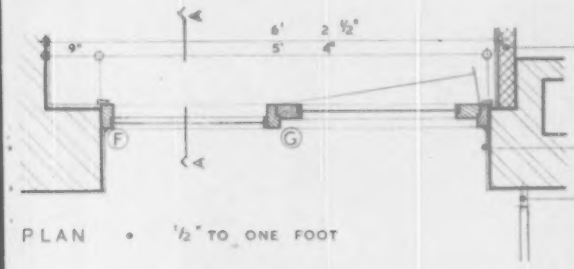


MILD YELLOW STOCKS
3" WHITE PLASTIC NUMERALS
RECESSED CONCRETE LINTOL, RENDERED FINISH, DEEP RED COLOUR
REEDED GLASS
HAMMERED GLASS
OLIVE GREEN DOOR
CYLINDER NIGHT LATCH
1 ¾" Ø WHITE PLASTIC DISC WITH BELL PUSH
HAMMERED GLASS
POSITION OF LETTER CAGE
1" WHITE PLASTIC NUMERALS
STEEL BALUSTRADE
WHITE DOOR FRAME

ELEVATION

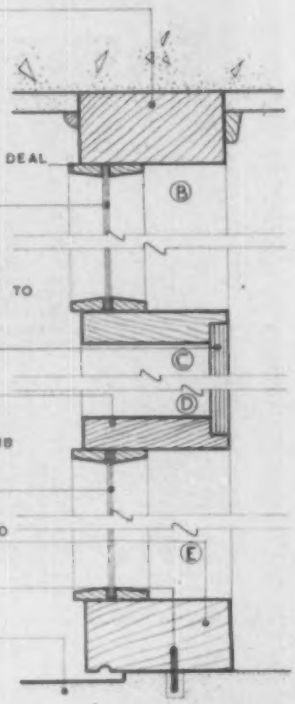


SECTION A-A



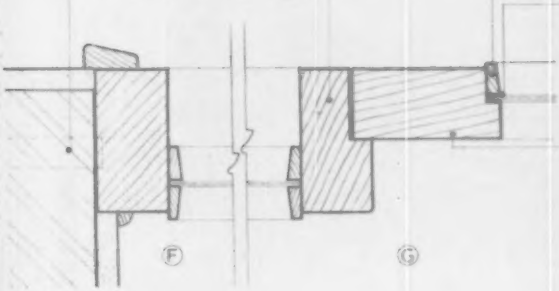
PLAN • ½" TO ONE FOOT

3" BREEZE
EX 4"X 2" HEAD
RENDERING ON BRICK FACE
℄ OF BALUSTRADE



BEADS OUT OF 1" X ½" DEAL
HAMMERED GLASS
EX 1" X ½" BEAD
WASHLEATHER SEATING TO DOOR GLAZING
½" PLYWOOD BACK
EX 4" X 1" DEAL
EX 4" X 2" DOOR JAMB
HAMMERED GLASS
EX 4" X 2" HARDWOOD CILL
WATER BAR
GRANOLITHIC ON PRE-CAST FLOOR

OUT OF 4" X 2" DEAL
LUG IN BRICKWORK



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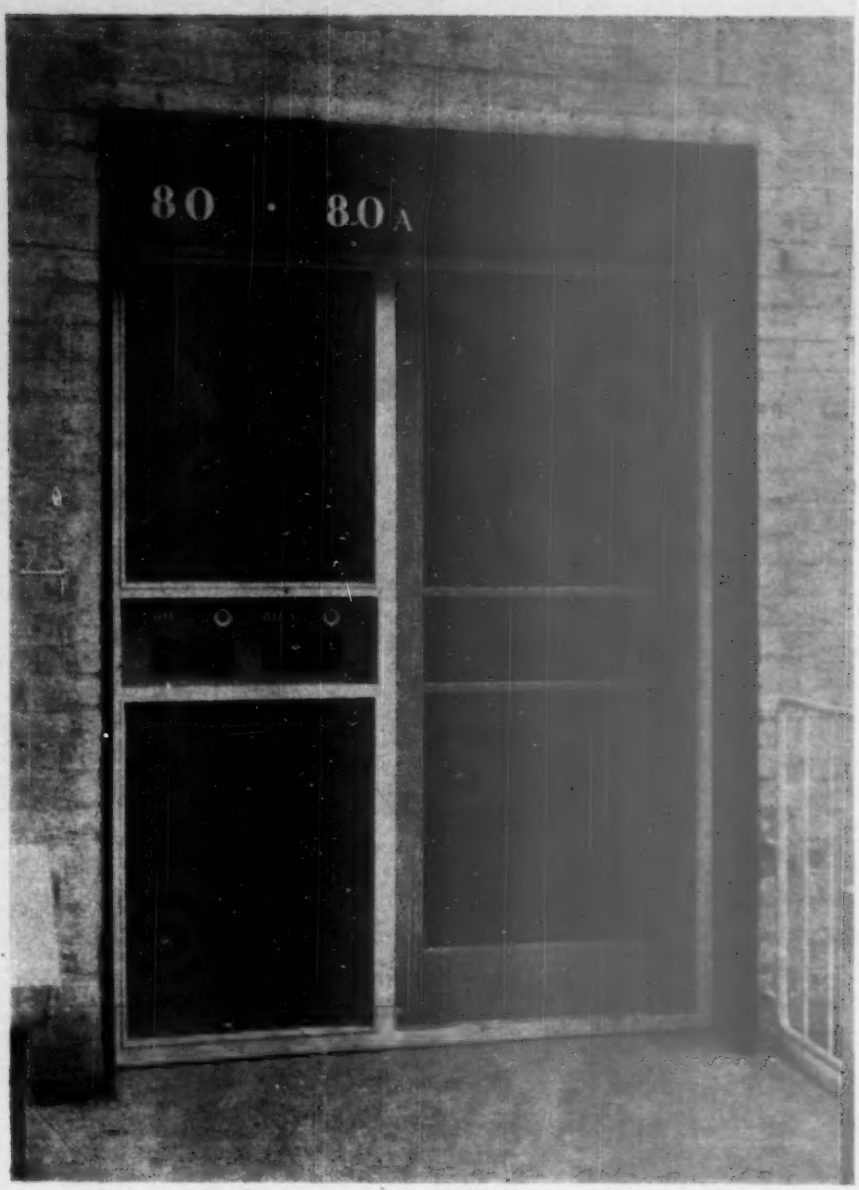
101



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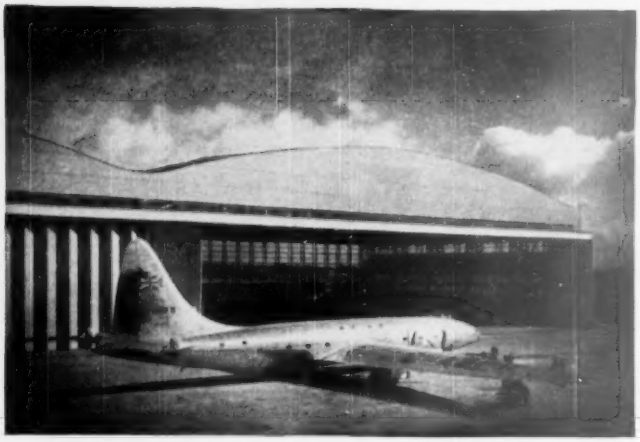

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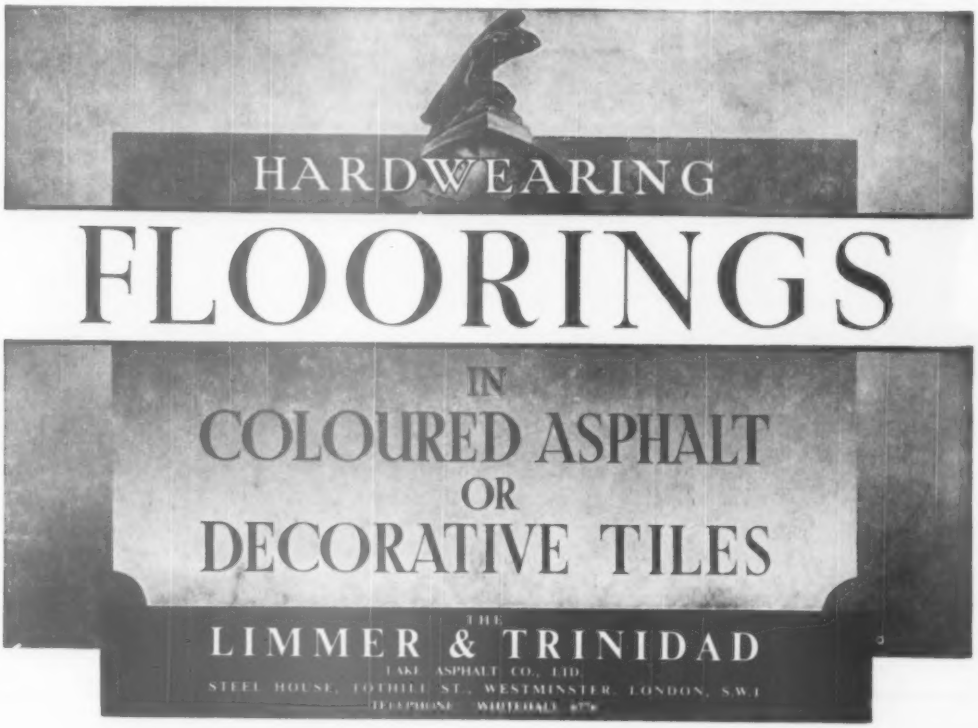
M-W.71



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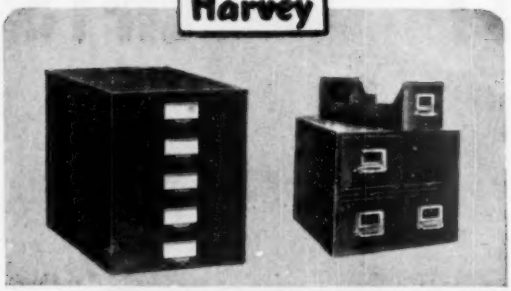

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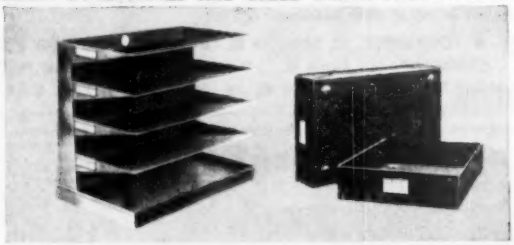
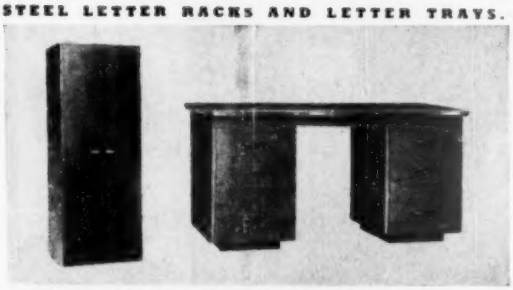


STEEL LETTER RACKS AND LETTER TRAYS.



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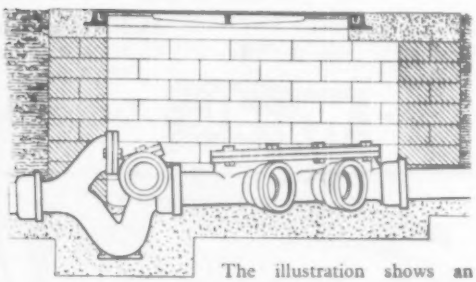

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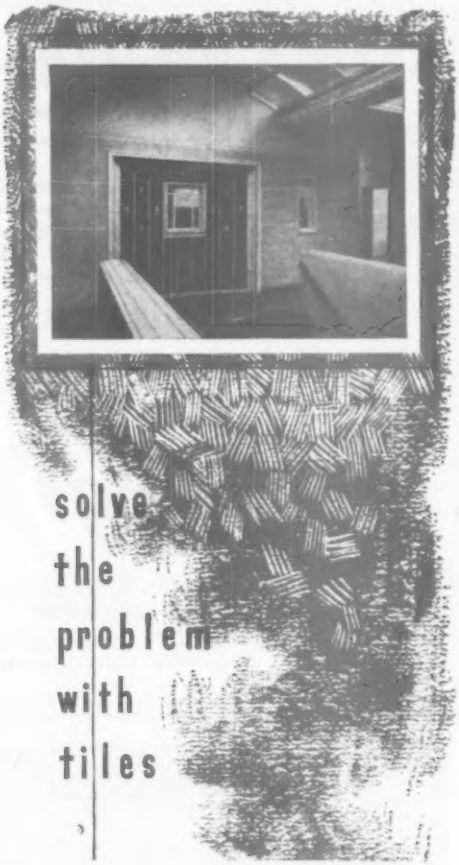

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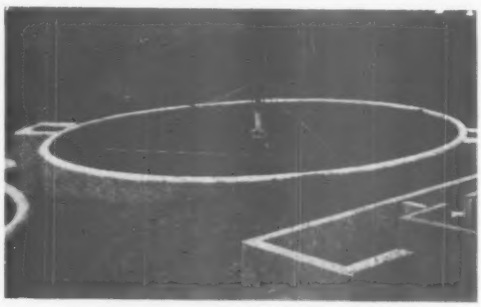

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The post will be superannuable under the Local Government Superannuation Act, 1937, and the appointment will be subject to passing a medical examination.

Applications, giving full particulars of the candidate's age, qualifications and experience, together with the names of two persons to whom reference can be made, must reach the General Manager, Bracknell Development Corporation, Farley Hall, Binfield, Bracknell, Berks, on or before 25th November, 1950, marked "Chief Quantity Surveyor." [4971

CHESHIRE COUNTY COUNCIL.

COUNTY PLANNING DEPARTMENT.

APPLICATIONS are invited for the position of CHIEF PLANNING ASSISTANT (ARCHITECTURE) at Headquarters—A.P.T. VIII, £685-£25 - £760 per annum. Consideration will be given to the up-grading of this post at the next Annual Review early in 1951.

The appointment is subject to the Local Government Superannuation Act, 1937, and the successful candidate will be required to submit a satisfactory medical certificate.

Applicants must be Associates of the Royal Institute of British Architects or hold a similar qualification, and preference will be given to candidates who are also Corporate Members of the Town Planning Institute.

The successful applicant will be required to undertake the detailed planning of housing estates, neighbourhood units and redevelopment areas, and to advise in the control of elevations.

Application forms, and further details and conditions attaching to the appointment, may be obtained from the undersigned on receipt of a stamped and addressed foolscap envelope. The last date for the receipt of completed applications is the 27th November, 1950.

KENNETH O. MALE, County Planning Officer.
Bridgegate House,
Lower Bridge Street, Chester. [4977

FLINTSHIRE COUNTY COUNCIL.

APPLICATIONS are invited for the appointment of an ASSISTANT ARCHITECT in the County Architect's Department at a salary on Grade A.P.T./VI (£595 per annum to £660 per annum) or Grade A.P.T./VII (£635 per annum to £710 per annum) or a combination of both Grades according to qualifications and experience. Applicants must be Registered Architects and preferably Associate Members of the Royal Institute of British Architects, and should have had adequate professional experience in the preparation of surveys, designs, specifications and construction of modern buildings, particularly school buildings. The appointment is superannuable and subject to the passing of a medical examination. Applications will be considered from Registered Disabled Persons. Applications, on a form to be obtained from the undersigned, are to be returned to me not later than the 27th November, 1950.

W. HUGH JONES, Clerk of the County Council.
County Buildings, Mold. [4981

AMENDED ADVERTISEMENT.

URBAN DISTRICT OF ELLESMERE PORT.

APPOINTMENT OF TWO SENIOR ARCHITECTURAL ASSISTANTS.

APPLICATIONS are invited from qualified and experienced men for the above appointments on the permanent salaried staff of the Engineer and Surveyor to the Council. Applicants must have had considerable experience in design and construction, particularly in relation to housing. The Council's authorised housing programme provides for the erection of houses at the rate of 600 houses per annum for the next five to eight years in order to meet the housing needs of extensive and important local industries. The salary to be offered in each case will be within Grade V(a) of the A.P.T. Division of the National Salary Scales (£550-£610 per annum). Weekly tenancies of suitable Council houses will be offered to successful applicants on appointment if they reasonably require housing accommodation for their families.

Applications, stating age, qualifications and experience on the Form provided, which may be obtained on application to the Council's Engineer and Surveyor, together with the names and addresses of two persons, having knowledge of the applicant's experience and antecedents, to whom reference can be made, must reach me by not later than Monday, the 20th November, 1950.

P. J. HODGES, Clerk of the Council.
Council Offices, Ellesmere Port.
1st November, 1950. [4975

LONDON COUNTY COUNCIL.

APPLICATIONS are invited for positions of ARCHITECTURAL ASSISTANT (salaries up to £580 a year) in the Housing and Valuation Department. Commencing salaries will be determined according to qualifications and experience. Engagement will be subject to the Local Government Superannuation Acts, and successful candidates will be eligible for consideration for appointment to the permanent staff on the occurrence of vacancies.

Successful candidates will be required to assist in the design, layout and preparation of working drawings for housing schemes (cottages and multi-storey flats) and will be employed in the Housing Architect's Division.

Forms of application may be obtained from the Director of Housing, The County Hall, Westminster Bridge, S.E.1 (stamped addressed envelope required and quote reference A.A.1). Canvassing disqualifies. (816) [4991

COUNTY BOROUGH OF EAST HAM.

BOROUGH ENGINEER'S DEPARTMENT.

APPLICATIONS are invited for the undermentioned appointments—

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The Council will be prepared to consider applications for a subsistence allowance in appropriate cases from persons appointed should they be unable to obtain suitable housing accommodation.

Full particulars of the duties, terms and conditions of appointment and form of application (which must be returned by Monday, the 27th November, 1950) may be obtained from the undersigned.

Canvassing will disqualify.

H. A. EDWARDS, Town Clerk.
Town Hall, East Ham, E.6. [5000

BOROUGH OF WALTHAMSTOW.

ARCHITECT'S DEPARTMENT.

ASSISTANT ARCHITECT.

APPLICATIONS are invited for an ASSISTANT ARCHITECT (Grades I/V—£420-£600), commencing salary according to qualifications and experience.

Applications, with names of two persons for references, should be received by the undersigned not later than the 1st December, 1950.

G. A. BLAKELEY, Town Clerk.
Town Hall, Walthamstow, E.17. [4963

KENT COUNTY COUNCIL.

APPLICATIONS are invited for appointment in the Buildings Department of a BUILDING SURVEYOR, at a salary within A.P.T. Grades IV-V(a) (£480-£610).

Applicants should have had practical experience in the building trade and be thoroughly competent to supervise work and prepare specifications and detailed estimates in connection with the maintenance of buildings, and to prepare drawings for new projects of a minor nature. They should preferably be Licentiates of the Institute of Builders by examination or have passed the examination for Building Surveyors of the Royal Institute of British Architects, or hold an equivalent qualification.

The commencing grade and salary will be dependent upon qualifications and experience. The post is superannuable and the successful candidate will be required to pass a medical examination.

The Council is unable to assist in the provision of housing accommodation for the successful candidate.

Applications, on forms obtainable from the County Architect, Springfield, Maidstone, should be submitted to him not later than fourteen days after the appearance of this advertisement.

W. L. PLATTS, Clerk of the County Council.
County Hall, Maidstone.
6th November, 1950 [4996

RHONDDA URBAN DISTRICT COUNCIL.

APPLICATIONS are invited from suitably qualified persons for the appointment of ASSISTANT ARCHITECT in the Department of the Council's Housing Architect, at a salary in accordance with Grade A.P.T. VI (£595 x £20/25 - £660).

Applicants for the post should have sound general architectural experience and must be good draughtsmen. Previous Local Government experience is not essential but preference will be given to Associates of the Royal Institute of British Architects.

The appointment will be terminable by one month's notice on either side and will be subject to the National Scheme of Conditions of Service. The successful candidate will be required to pass a medical examination, and to be a contributor within the meaning of the Local Government Superannuation Act, 1937.

Applications on forms to be obtained from the Housing Architect, Mr. C. Gingell, A.R.I.B.A., A.R.I.C.S., 13 Ystrad Road, Pentre, Rhondda, accompanied by copies of two recent testimonials, to be returned to the undersigned in envelopes endorsed "Assistant Architect" not later than Monday, the 4th of December, 1950.

D. J. JONES, Clerk of the Council.
The Council Offices,
Pentre, Rhondda. [4997

CROWN AGENTS FOR THE COLONIES.

QUALIFIED candidates are invited to apply for the following posts:—

ARCHITECTURAL ASSISTANT (M/N/27237/3A) required by the Government of Northern Rhodesia for the Public Works Department, for one tour of 36 months. Commencing salary according to age and experience in the scale £510 rising to £865 a year, plus cost of living allowance up to £38 a year. Gratuity on satisfactory completion of service. Free passages. Liberal leave on full salary. Candidates should be students of the Royal Institute of British Architects or have had five years' practical experience. A knowledge of survey work and writing of specifications would be an advantage.

QUANTITY SURVEYOR (TEMPORARY) (M/N/25523/1A) required by the Uganda Government for the Public Works Department for one tour of 30 to 36 months in the first instance. Commencing salary according to age and experience in the scale £655 a year rising to £1,140 a year. Outfit allowance £30. Gratuity on satisfactory completion of services. Free passages. Liberal leave on full salary. Candidates, not over 35, must have passed the Intermediate examinations of the Royal Institution of Chartered Surveyors and be capable of performing the normal duties of a Quantity Surveyor including the preparation of Bills of Quantities, Site Measuring and Finalising Contracts.

Apply at once by letter, stating age, full names in block letters, and full particulars of qualifications and experience, and mentioning this paper, to the Crown Agents for the Colonies, 4 Millbank, London, S.W.1, quoting on both letter and envelope the reference number shown against the post for which application is made. The Crown Agents cannot undertake to acknowledge all applications and will communicate only with applicants selected for further consideration. [5008

MUNICIPALITY OF SINGAPORE.

APPOINTMENT OF TEMPORARY ASSISTANT ARCHITECT.

DEPARTMENT OF MUNICIPAL ARCHITECT AND BUILDING SURVEYOR.

APPLICATIONS are invited for above appointment on three years' agreement with possible renewal. Duties will be in connection with the design of buildings for the Waterworks Extensions.

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Applications in duplicate with full personal and technical information and copies of three testimonials, to Messrs. Pearce & Williams (Agents to the Municipal Commissioners), 1 Victoria Street, London, S.W.1, by Thursday, 30th November, 1950. [4976

CROWN AGENTS FOR THE COLONIES.

STAFF required by the Gold Coast Government for the Public Works Department for the construction of the Kumasi Central Hospital for two tours of 18 to 24 months. Free passages. Liberal leave on full salary.

RESIDENT ENGINEER (M/N/27190/3A). Fixed consolidated salary between £1,500 to £1,800 a year according to qualifications and experience. Candidates should be members of the Institute of Clerks of Works, with considerable experience as Clerk of Works in the supervision of large scale building works and possessing a sound knowledge of Bills of Quantities and Building Contract procedure.

MEASURING SURVEYOR (M/N/27191/3A). Fixed consolidated salary between £1,000 and £1,200 a year according to qualifications and experience. Candidates should be capable of measuring and checking work in progress, variations, preparation of interim valuations and recording and checking contractor's claims date.—Apply at once by letter, stating age, full names in block letters, and full particulars of qualifications and experience, and mentioning this paper, to the Crown Agents for the Colonies, 4 Millbank, London, S.W.1, quoting the reference number of the post applied for on both letter and envelope. The Crown Agents cannot undertake to acknowledge all applications and will communicate only with applicants selected for further consideration. [4982

AIR MINISTRY have vacancies for DESIGNING DRAUGHTSMEN in the Designs Branch of the Works Department in the following fields: Architecture, Drainage and Water Supply, Land Survey. Vacancies are mainly in London but there are some in the provinces. If desired, consideration would be given to making appointments for London only. Salaries are on ranges up to £625 with starting pay in accordance with age and qualifications.—Applications, stating age, qualifications, previous appointments with dates, should be sent to Air Ministry (S.2.H.), Cornwall House, London, S.E.1, from which address further details may also be obtained. [5004

BOROUGH OF ROYAL TUNBRIDGE WELLS.

THE Council invite applications for the appointment of the following:—

ARCHITECTURAL ASSISTANT, Grade IV. Salary in accordance with the National Scale, A.P.T. IV (£480-£525).

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, and to the selected candidate passing a satisfactory medical examination.

Applicants should state whether to their knowledge they are related to any member or senior officer of the Council.

Applications, stating experience and qualifications, together with the names of two persons to whom reference may be made, to be submitted to the Borough Surveyor and Water Engineer not later than 10 a.m. on Saturday, 25th November, 1950.

(Signed) JOHN WHITEHEAD, Town Clerk.

Town Hall, Tunbridge Wells.
November, 1950. [5014

COUNTY BOROUGH OF NORTHAMPTON.

DEPARTMENT OF BOROUGH ARCHITECT AND TOWN PLANNING OFFICER.

APPLICATIONS for the following permanent posts, stating age, qualifications, experience, past and present appointments and salary, whether related to any member or senior officer of the Council, and giving the names of two persons to whom reference can be made, should be delivered to J. L. Womersley, A.R.I.B.A., A.M.T.P.I., Borough Architect and Town Planning Officer, Guildhall, Northampton, not later than 27th November, 1950. Canvassing will disqualify.

(a) ASSISTANT ARCHITECT, Grade V, A.P.T. (£520-£570).

Candidates must be Registered Architects and should have sound design ability and be experienced in the preparation of working drawings and estimates. Successful applicant will be engaged in the Education Section and preference will be given to applicants having experience in educational work.

(b) ARCHITECTURAL ASSISTANT, Grade III, A.P.T. (£450-£495).

Candidates should have reached Intermediate R.I.B.A. standard. Successful candidate will be engaged on two- and three-storey houses and three- and six-storey flats, etc., in the Housing Section.

C. E. VIVIAN ROWE, Town Clerk. [5005

LONDON COUNTY COUNCIL.

REQUIRED as soon as possible at Hammersmith School of Building and Arts and Crafts, Lime Grove, W.12, STUDIO MASTER in Architectural Section preparing students for examinations of the R.I.B.A. Applicants should hold the A.R.I.B.A. and have preferably been trained at a School of Architecture. Facilities will be afforded for private practice.

The salary ranges (for a man) from a minimum of £336 £618 to a maximum of £603-£708 according to age, qualifications and experience, and is subject to review on 1st April, 1951.

Application forms (stamped addressed foolscap envelope required) from the Secretary at the School, returnable by 2nd December, 1950. (1441). [5002

METROPOLITAN BOROUGH OF PADDINGTON.

HOUSING DEPARTMENT: ARCHITECTURAL SECTION.

APPOINTMENT OF TWO QUANTITY SURVEYOR'S ASSISTANTS.
(A.P.T. II—£420 £465 p.a. plus London "Weighting.")

APPLICATIONS are invited for these appointments, which are subject to the National Joint Council's Service Conditions, the Council's Superannuation Acts, and to one month's notice on either side.

Candidates should have experience in all branches of building work and be familiar with a Quantity Surveyor's duties, including assisting in the preparation of estimates, working up, abstracting and billing, site measurement and working up to final account stage. Preference will be given to candidates who have passed or are at the standard of the Intermediate Examination of the R.I.C.S. (Quantities Sub-Division).

Candidates must state age, qualifications, present and past appointments, with dates and salaries, experience, and names of three referees.

Applications must be received not later than noon on Friday, 24th November, 1950.

W. H. BENTLEY, Town Clerk.

Town Hall, Paddington, W.2.
16th November, 1950. [5015

QUANTITY SURVEYOR required by BRITISH RAILWAYS (Western Region) to take charge of the Quantity Surveying Section in the Architect's Office, Paddington. Salary £725-£775 per annum. Applicants must be A.R.I.C.S. and have experience in supervisory capacity in addition to high technical and administrative ability.

Applications, stating age, experience and qualifications, to be addressed to the Chief Engineer, British Railways (Western Region), Paddington Station, W.2, not later than 1st December, 1950. [5013

INSURANCE

ARCHITECTS' Indemnity Insurance effected. Please write for Proposal Form to E. J. SANBY, Incorporated Insurance Broker, 17a Carfax, Horsham, Sussex. Tel. 990. [4980

ARCHITECTURAL APPOINTMENTS VACANT

CAPABLE Architectural Assistant required, preferably with knowledge of City Office Building Design, Construction and Local Authorities requirements. Applicants should be used to working on their own initiative.—Write, with full details of experience, age and salary required, Box 7100, The Architect and Building News. [5009

J. DOUGLASS Mathews & Partners, Chartered Architects, 3 Ebury Street, London, S.W.1, require an Assistant, Inter. R.I.B.A. Salary in R.I.B.A. scale. [5012

SITUATIONS VACANT

ARCHITECTURAL Metal Workers require a Designer-Draughtsman of considerable merit. Top salaried position for skilled man.—Apply The Morris Singer Company, Hope House, St. Peter Street, Westminster, S.W.1. [0095

CHIEF Architectural Draughtsman required with sound knowledge of Industrial Building Construction. Five-day working week and pension scheme. Staff canteen. Housing accommodation available.—Write, stating age, experience and salary required to Chief Staff Architect, Ilford Limited, Romford, Essex. [5006

SENIOR DRAUGHTSMAN. Leading Exhibition Organiser seeks a first-class Senior Architectural Draughtsman for full-time staff post. He must have had extensive experience on exhibition ground plans and design of general decor and features, the production of efficient working drawings and specifications for contractors, and be capable of maintaining an efficient system of service between organiser and exhibitors. Ability to produce really attractive perspective sketches is desirable.—Applications, giving full details of previous experience, present activity, age, salary required, will be regarded as fully confidential and should be addressed to Box 7053, The Architect and Building News. [5001

OLYMPIA Ltd. require a Senior Assistant age 25-35 to deal with large exhibition contracts. Applicants must have good personality and be experienced in Building Construction, Surveying, Estimating, Final Accounts and negotiations with clients. Reply stating age, experience and salary required.—All applications must be made in writing to The Estates Manager, Olympia Ltd., Kensington, W.14, and will be treated in the strictest of confidence. [5007

QUANTITY SURVEYOR required by Company owning Paper Mills and Warehouses throughout Great Britain. Preferably young, qualified, with some practical experience. Prepared to work without assistance, and do some travelling. Established post, with pension scheme, after probationary period. Salary up to £600.—Apply, giving fullest particulars, to Surveyor's Department, Wiggins Teape & Co. (1919) Ltd., Aldgate House, Mansell Street, London, E.1. [5003

SITUATIONS WANTED

YOUNG Architect, 26, fully qualified, seeks position. Willing to commence as draughtsman. Any district. Moderate salary.—Box 7052, The Architect and Building News. [4999

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CONTRACTS

COUNTY OF LINCOLN.
—PARTS OF LINDSEY.
POLICE BUILDINGS AND COURTS, TOWN HALL SQUARE, SCUNTHORPE.

CONTRACT No. 2—SUPERSTRUCTURE.

CONTRACTORS desirous of tendering for the Superstructure of these buildings, known as Contract No. 2, should submit their names to the Architects, Messrs. C. B. Pearson & Son, F.R.I.B.A., 18 Dalton Square, Lancaster, on or before the 30th November, 1950. The Foundations up to Ground Level, Roads, Sewers and Site Works have been subject to a separate contract and are now nearing completion.

Specifications, Bills of Quantities and Form of Tender will be sent to Contractors desirous of tendering, and plans may be seen at the Offices of the Architects, the Office of the Clerk of Works on the site, or at my Offices.

The acceptance of any tender is subject to the approval of the Home Office and the Council do not bind themselves to accept the lowest or any tender.

Sealed tenders endorsed "Scunthorpe Police Buildings and Courts," must be delivered to me not later than Saturday the 6th January, 1951.

HERBERT COPLAND,
Clerk of the County Council.

County Offices, Lincoln.
November, 1950. [5010

CATERHAM AND WARLINGHAM URBAN DISTRICT COUNCIL.

CREWES AVENUE HOUSING SITE No. 34, WARLINGHAM.

TENDERS are invited for the erection of the following dwellings on the above housing site:—
4 pairs of C.3 B/2 houses.
3 pairs of P.N.3 houses.
3 blocks P.2 F. flats.

Drawings, Specifications and Forms of Tender may be obtained on application to the Surveyor, Council Offices, Caterham, on payment of £2 2s. 0d., which will be returned on receipt of a bona-fide tender.

Tenders in plain sealed envelopes, endorsed "Crewes Avenue Housing Site," must reach the undersigned not later than 12 noon on Friday, 15th December, 1950.

The Council do not bind themselves to accept the lowest or any tender.

P. E. DIMMOCK, Clerk of the Council.
Council Offices, Caterham, Surrey. [5016

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"DOHM VERMICULITE" for concrete, plastering and loose fill in schools, flats, factories, power stations, kilns, etc.—Insulating and slashing weight.—Dohm Ltd., 167 Victoria Street, London, S.W.1. [0103

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MODERN Floor Covering in Rolls or Tiles. Laid direct on to wood, concrete, stone, etc. Decorative, non-slip, oil, grease, alkalis and acid resistant. Economic to install, highly durable, easy to maintain.—Inquiries to Interfusion Ltd., 66 Fenchurch Street, London, E.C.3. [4964

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INDEX TO ADVERTISERS

Official Notices, Tenders, Auctions, Legal and Miscellaneous Appointments on pages 36, 37 and 38.

Adams—Hydraulics Ltd. 32
Aerailte Ltd. 32
Adamsez Ltd. 35
Bath & Portland Stone Firms Ltd. 35
Betterways Ltd. 34
Beverley, Frank 34
Blackwells & National Roofings Ltd. 29
Boulton & Paul Ltd. 18
Bright's Asphalt Contractors Ltd. 35
British Electrical Development Association . . . 8
British Hermeseal Ltd. 17
British Reinforced Concrete Engineering Co. Ltd. 16
Burn Bros. (London) Ltd. . . . 30
Cellon Ltd. 12
Clifford, Charles & Son Ltd. . . 25
Curfew Doors & Shutters Ltd. . 33
De La Rue, Thomas & Co. Ltd. 21
Dennison Kett & Co. Ltd. . . . 34
Docker Bros. 4
Ellis School, The 34
Engert & Rolfe Ltd. 34
Esavian Ltd. 24
Gas Council, The 11
General Electric Co. Ltd. . . . 6
Gent & Co. Ltd. 31
Gibson, A. L. & Co. 7
Gimson & Co. (Leicester) Ltd. 35
Gray, J. W. & Son Ltd. 34
Hall, J. & E. Ltd. 5
Harvey, G. A. & Co. (London) Ltd. 28
Henley's W. T. Telegraph Works Co. Ltd. . . . *Outside Back Cover.*
Highways Construction Ltd. . . . 35
Hope, Henry & Sons Ltd. 23
Ibstock Brick & Tile Co. Ltd. . 20
Industrial Engineering Ltd. . . . 2
Key Engineering Co. Ltd. . . . 32
Le Bas Tube Co. Ltd. . . . *Inside Back Cover.*
Lewis Bitumen & Asphalt Co. Ltd. 34
Limmer & Trinidad Lake Asphalt Co. Ltd. 25
Lithex Products 34
Margolis, M. 34
Marley Tile Co. Ltd. 1
Marryat & Scott Ltd. 27
Margolis, S. & Sons. 38
McCarthy, M. & Sons Ltd. . . . 34
Mallinson, William & Sons Ltd. 15
Mealing Bros. Ltd. 34
Morris, Herbert Ltd. 34
Mullen & Lumsden Ltd. 34
National Coal Board 14
Northern Organisation 34
Newman, William & Sons Ltd. *Inside Front Cover.*
Parker, Winder & Achurch Ltd. 33
Pearhyn Quarries 35
Pilkington Bros. Ltd. 3
Pilkington's Tiles Ltd. 31
Price, D. W. 28
Reliable Plywood Co., Ltd. . . . 35
Reynolds, H. L. Ltd. 32
Ruberoid Co. Ltd., The 10
Sharman, R. W. Ltd. 24
Shap Granite Co. Ltd. 33
Shutter Contractors Ltd. 28
Stainless Steel Sink Co. Ltd. . . 22
Stanley, W. F. & Co. Ltd. . . . 26
Steven, A. & P. Ltd. 34
Stramit Boards Ltd. 26
Thompson, John Beacon Windows Ltd. 9
Thermacoust Ltd. 33
Vulcanite Ltd. 30
Walker Bros. Ltd. 27
Ward, Thos. W. Ltd. 34
Wardle Engineering Co. Ltd. . . 29
Warry Patent Building Equipment Co., Ltd. 34
West's Piling & Construction Co. Ltd. 20
Williams, John & Sons (Cardiff) Ltd. 13
Wood, E. & Co. Ltd. 19

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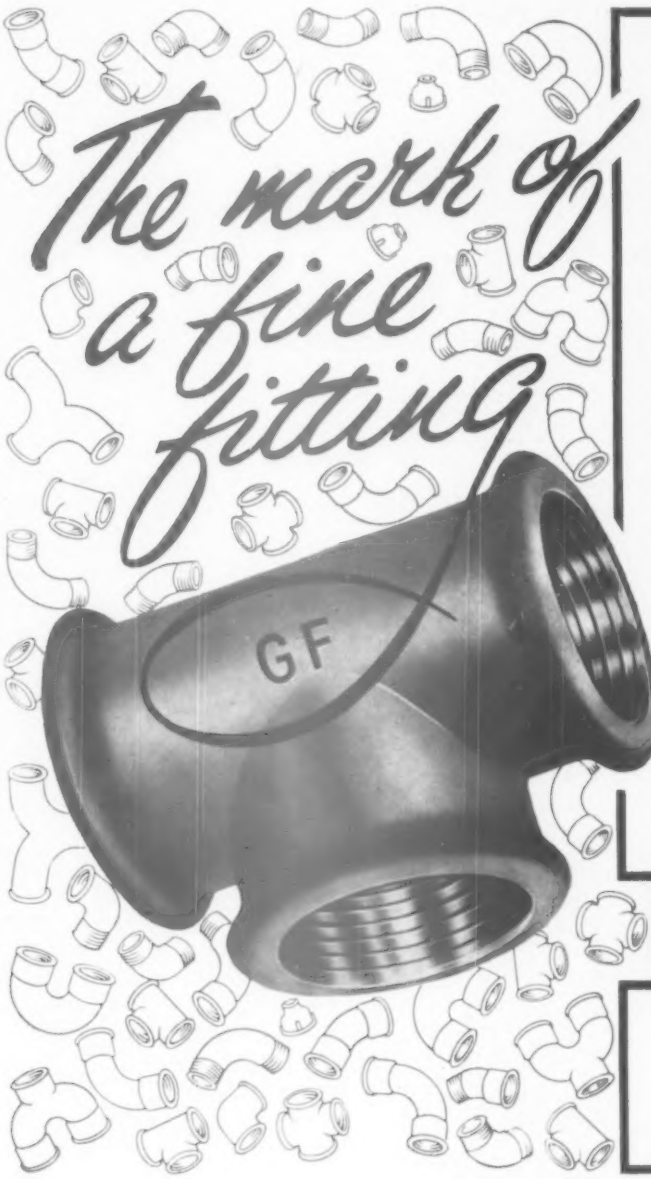

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